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A REVISION OF THE GENUS *MORMIDEA* (HEMIPTERA: PENTATOMIDAE)

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Abstract.—Rolston, L. H., Department of Entomology, Louisiana State University, Baton Rouge, Louisiana 70803.—The 33 species of *Mormidea* are described and keyed. One of these species, *M. geographica,* is provisionally retained in the genus, although certainly it mars the phyletic homogeneity of the genus. Seven new species are described: *M. dana, M. faisana, M. isla, M. lunara, M. pama, M. rugosa* and *M. vaya.*

The following new synonymy is recognized: *M. angustata* Stål (=*M. pulchella* Walker, =*M. lemoulti* Bergroth); *M. cornicollis* Stål (=*M. jheringi* Berg); *M. fusca* Stål (=*M. angulosa* Stål); *M. geographica* (F) (=*M. brevis* Walker, =*Oenopiella testacea* Ruckes); *M. hamulata* Stål (=*M. pullata* Berg); *M. paupercula* Berg (=*M. profana* Breddin); *M. v-luteum* (Lichtenstein) (=*M. spegazzini* Berg, =*M. tristis* Bergroth); and *M. ypsilon* (L) (=*Pentatoma scutellata* Westwood).

M. discoidea (Dallas) is removed from the synonymy of *M. notulata* and recognized as a good species.

A lectotype is designated for each of the following: *M. aglaeopus* Dallas, *M. angulosa* Stål, *M. compta* Walker, *M. cornicollis* Stål, *M. fusca* Stål, *M. hamulata* Stål, *Euschistus integellus* Distant, *M. jheringi* Berg, *M. metallica* Stål, *M. pictiventris* Stål, *M. sordidula* Stål, *M. spegazzini* Berg and *M. spiculigera* Stål.

Moromorpha n. gen. is erected for *Mormidea tetra* Walker, type species. The genus is described, as is *Mormidea,* and a key provided to separate these genera from each other and from *Oebalus.*

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As the genus *Mormidea* was conceived initially, its limits were so generous that for several decades afterward many rather distantly related species were placed therein. Subsequent refinements in classification left in *Mormidea* only species of the Western Hemisphere, most of which are indeed congeneric. However, the genus has not been revised prior to this time.

This revision leaves, with one exception, a homogeneous group of 33 species, seven of which are previously unrecognized, and removes one species to a new genus. The generic placement of *Mormidea geographica* (Fabricius) is not disturbed for now, even though the male genitalia would support removal of this species to a new genus. This timorous treatment of the species is excused on the grounds that the entire nominate tribe in the Western Hemisphere needs reviewing, and the addition of a genus now on the basis of cryptic characters may be a disservice.

Index to Species of *Mormidea*

Subgenus *Melanochila*
  bridarolli Pirán
  lugens (Fabricius)
  montandoni Kirkaldy
  purpurescens Van Duzee
Subgenus *Mormidea*
  albisignis Stål
  ambigua Berg
  angustata Stål
  bovilla (Distant)
  collaris Dallas
  cornicollis Stål
  cubrosa (Dallas)
  dana n. sp.
  discoidea (Dallas)
  faisana n. sp.
  fusca Stål
  geographica (Fabricius)
  hamulata Stål
  integella (Distant)
  isla n. sp.
  laevigata Distant
  lunara n. sp.
  maculata Dallas
  metallica Stål
  notulata (Herrich-Schäffer)
  notulifera Stål
  pama n. sp.
  paupercula Berg
  pictiventris Stål
  rugosa n. sp.
  speciosa Haglund
  vaya n. sp.
  v-luteum (Lichtenstein)
  ypsilon (Linneaus)

Related Genera

Among American pentatomids, the genera most like *Mormidea* are *Oebalus* and a new monotypic genus, characterized below, which is based on the species previously known as *Mormidea tetra*. The following key separates the three genera.

1. Superior surface of tibiae sulcate; a small flat spine arising at posterior pronotal angle and extending over each corium *Moromorpha* n. gen.
– Superior surface of tibiae rounded; posterior pronotal margin unarmed 2
2. Apex of first rostral segment not or scarcely surpassing bucculae *Oebalus* Stål
– Apex of first rostral segment clearly surpassing bucculae *Mormidea* Amyot & Serville

Moromorpha n. gen.

Small flat spine on each side of pronotum arising at posterior angle and projecting over corium (Fig. 1).

Distal end of first antennal segment not quite reaching apex of head; other four segments each longer than first. Juga and tylus subequal in length. Bucculae toothed anteriorly, truncate posteriorly, clearly exceeded by distal end of first rostral segment. Propleura without anterior lobe. Prosternum slightly concave longitudinally, without carina; mesosternum bearing low median carina cephalad of xyphus; metasternum nearly flat. Orifice of scent gland auriculate, neither much prolonged as canal nor accompanied by elongated ruga. Femora unarmed; tibiae sulcate on superior surface; tarsi three segmented. Lateral angle of corium surpassing apex of scutellum, attaining fourth connexival segment. Abdominal venter without median tubercle or spine at base; spiracles lying on or near imaginary line passing between the two trichobothria on each of first five visible sternites.

Type species.—Mormidea tetra Walker, 1868.

The generic placement of *Mormidea tetra* has escaped challenge until now, presumably because in general appearance and most characters this species resembles some common *Mormidea* species. The sulcate tibiae have been regarded as a generic anomaly and a convenience in distinguishing the species. The pronotal projections seem not to have been noticed or at least not to have provoked comment. This combination of characters preclude accommodating the species in the genus *Mormidea* and seem to exclude it from any previously established genus.

The construction of the male genitalia of the type species, together with other characters, place *Moromorpha* near *Mormidea*. This species and *Mormidea ypsilon*, the type species of *Mormidea*, are similar in the form of the theca, placement of major conjunctival lobes, great development of the median penial lobes and presence of a large vesical plate (Figs. 2, 3).

Mormidea Amyot & Serville, 1843

Mormidea Amyot & Serville, 1843, p. 134–135—Dallas, 1851, p. 195, 210 (keyed)—Stål, 1867, p. 527 (keyed)—Stål, 1872, 19–22 (synonymy, key to spp.)—Distant, 1880, p. 53 (synonymy, diagnostic note)—Provancher, 1886, pp. 26, 43 (keyed, desc.)—Lethierry & Severin, 1893, p. 123 (synonymy)—Summers, 1898, p. 44 (keyed)—Kirkaldy, 1909, p. 59 (synonymy)—Zimmer, 1912, p. 222 (keyed)—Parshley, 1915, p. 173 (keyed)—Van Duzee, 1917, p. 37 (synonymy)—Stoner, 1920, pp. 62, 74 (keyed, description)—Blatchley, 1926, p. 212–213 (keyed, described, key to spp.)—Barber & Bruner, 1932, p. 249, 251–252 (keyed, key to Cuban spp.)—Torre Bueno, 1939, p. 210, 217–218 (keyed, key to N. Amer. spp.)—Froeschner, 1941, p. 217, 219 (keyed)—Bruner & Barber, 1949, p. 157 (list Cuban spp.)—Alayo, 1967, p. 8, 10–11 (keyed, key to Cuban spp.)—McPherson, 1970, p. 44 (keyed)—Hoffman, 1971, p. 29, 43 (keyed)

Distal end of first antennal segment not surpassing apex of head; each of remaining four segments longer than first. Tylus slightly longer than juga, apex of head parabolic. Bucculae toothed anteriorly, terminating convexly or rarely abruptly near base of head, clearly exceeded by distal end of first rostral segment. Propleura without anterior lobe partially covering genae.

→

PLATE 1

Figs. 1–2. *Moromorpha tetra*. Fig. 1. Spine at posterolateral angle of pronotum. Fig. 2. Part of genitalia inside pygophore, ventral view: median penial lobes (m); vesical plate (v).

Fig. 3. *Mormidea ypsilon*. Part of genitalia inside pygophore, ventral view: basal lobes of conjunctiva (c), median penial lobes (m); vesical plate (v).

Figs. 4–5. *M. lugens*. Fig. 4. Basal plates. Fig. 5. Pygophore, caudal view.

Figs. 6–8. *M. montandoni*. Fig. 6. Basal plates. Fig. 7. Pygophore, caudal view. Fig. 8. Left paramere, dorsomesial view with anterior part to right.

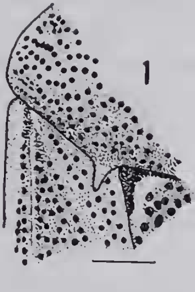
Fig. 9. *M. bridarolli*. Left paramere, dorsomesial view with anterior part to right.

Figs. 10–12. *M. bovilla*. Fig. 10. Left humerus. Fig. 11. Basal plates. Fig. 12. Pygophore, caudal view.

Figs. 13–15. *M. geographica*. Fig. 13. Left humerus. Fig. 14. Basal plates. Fig. 15. Part of genitalia inside pygophore, dorsal view.

Fig. 16. *M. speciosa*. Genital cup, dorsal view.

Dimensional line in Fig. 1 equals 0.5 mm and applies to Figs. 1, 4–7, 11–12, and 14. Figs. 2, 3, 8–9, 15–16 are twice this magnification. Figs. 10 and 13 are half this magnification.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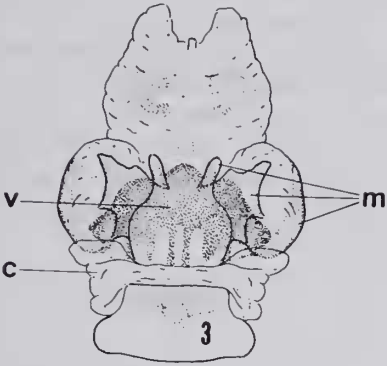

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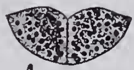
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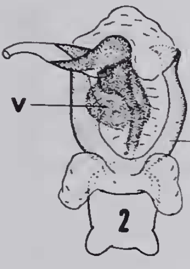

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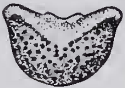
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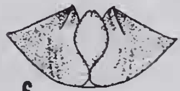
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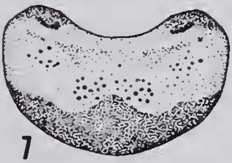
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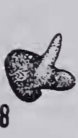
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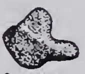
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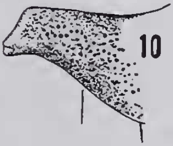
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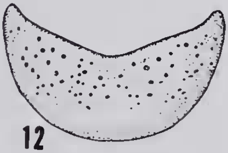
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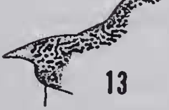
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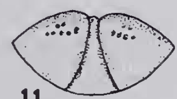
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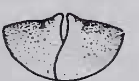
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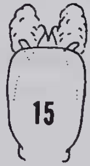
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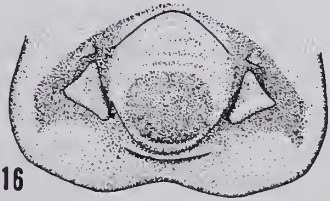
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Prosternum shallowly concave longitudinally, without carinae; mesosternum bearing low median carina cephalad of xyphus; metasternum nearly flat. Orifice of scent gland auriculate, not greatly prolonged into canal or accompanied by elongated ruga. Femora unarmed; superior surface of tibiae asulcate. Posterior angles of pronotum unarmed. Lateral angle of corium extending well beyond apex of scutellum, reaching fourth or fifth connexival segment. Abdominal venter lacking median spine or tubercle at base; spiracles lying within or just dorsad of imaginary band formed by longitudinal lines drawn through the two trichobothria on each of first five visible sternites.

Type species.—Cimex ypsilon Linneaus, 1758, by subsequent designation (Kirkaldy, 1909).

Subgenus Melanochila Stål, 1872

Subgen. *Melanochila* Stål, p. 19—Kirkaldy, 1909, p. 59, 61 (type species designated) Stoner, 1920, p. 75 (description)

This subgenus is characterized by an ivory callous traversing the pronotum at the posterior margins of the cicatrices but terminating short of the anterolateral margins of the pronotum.

This group seems to be one of convenience since the four included species appear not to differ basically from all others of the genus.

Kirkaldy (1909) designated *Cimex lugens* Fabricius, 1775, as type species.

Key to Species of *Mormidea*

1. Pronotum traversed at posterior margin of cicatrices by narrow ivory callous (Subgen. *Melanochila*) 2
– Pronotum at posterior margin of cicatrices uncalloused or with calloused (usually pale) spot at each cicatrice (Subgen. *Mormidea*) 5
2. Scutellum with an ivory callous along lateral or all margins 3
– Scutellum without marginal callous (Andean region) *M. purpurescens* Van Duzee
3. Ivory callous along basal and lateral margins of scutellum; disk of coria with prominent ivory callous along radial vein 4
– Ivory callous along lateral margins of scutellum only, disk of coria lacking linear callous along radial vein (North America) *M. lugens* (F.)
4. Proximal and distal ends of tibiae broadly banded in black, usually with narrow intermediate black band (Andean region) *M. montandoni* Kirkaldy
– Tibiae with numerous small black spots (Andean region) *M. bridarolli* Pirán

5. Dorsum mostly metallic green, head and pronotum anteriorly light brown (Amazon region) *M. speciosa* Haglund

– Dorsum mostly brown or black, often with ivory markings 6

6. Humeri cornute, sweeping laterad and dorsad, usually with a subapical tubercle on posterior margin (Fig. 10) (northern South America) *M. bovilla* (Distant)

– Humeri less strongly produced, lacking a subapical tubercle 7

7. Acutely produced humeri conspicuously emarginated posteriorly (Fig. 13); dorsum lacking pale markings (Venezuela, Guyana, northern Brazil) *M. geographica* (F.)

– Humeri obtuse or acute, if acute and emarginated then dorsum with pale markings 8

8. Anterolateral margins of pronotum angularly concave with anterior half crenulate (Fig. 61) (Argentina, southern Brazil) *M. paupercula* Berg

– Anterolateral margins entire, vertically rugose at most (Fig. 17) 9

9. Scutellum black or fuscous excepting at most three small pale dots or marks at base 10

– Scutellum brown to black but pale at apex or with pale marks at least along frena 15

10. With anterior and posterior pronotal margins on same focal plane, pale border clearly visible at least on cephalic half of anterolateral margins 11

– Anterolateral margins of pronotum black or fuscous from above 12

11. Males: superior ridge of pygophore reduced to subquadrate projection on each side of meson (Fig. 20). Females: mesial margin of basal plates nearly straight, widely separated proximally and contiguous distally (Fig. 18) (Argentina, Brazil) *M. cornicollis* Stål

– Males: superior ridge not reduced, arcuate, with deep mesial notch (Fig. 23). Females: mesial margins of basal plates contiguous from base to apex (Fig. 21) (Colombia) *M. fusca* Stål

12. Apex of scutellum acute (Fig. 31); most distal part of basal plates located above paratergite 9 (Panama) *M.* **vaya** n. sp.

– Apex of scutellum narrowly rounded (if acute in male, inferior ridge projecting caudad into triangle which nearly reaches posterior pygophoral margin (Fig. 30)); most distal part of basal plates above gonocoxae 2 13

13. Antennifers usually swollen. Males: pygophore deeply impressed mesially beneath inferior ridge. Females: mesial margin of basal plates quite concave (Fig. 25) (South America, Trinidad) *M. hamulata* Stål

– Antennifers normal. Males: pygophore rather evenly excavated behind inferior ridge. Females: mesial margin of basal plates straight for most or all of their length 14

14. Males: inferior ridge of pygophore produced as triangular process with apex directed posteriorly (Fig. 30). Females: basal plates subtriangular, rounded distally (Fig. 28) (Costa Rica, Panama) *M. integella* (Distant)

– Males: inferior ridge of pygophore simple. Females: basal plates truncate distally, angulate above paratergite 9 (Fig. 21) (Columbia, Venezuela) *M. fusca* Stål

15. Thin callous along frena somewhat paler than scutellar disk, but apex of scutellum concolorous with disk (Yucatan) *M.* **faisana** n. sp.

– Scutellum pale at apex, often with additional pale markings 16

16. Black mottling on abdominal venter arranged as irregularly contiguous and poorly defined vittae (northern Argentina, southern Brazil) *M. v-luteum* (Licht.)

– Abdominal venter with well-defined mesial vitta (sometimes accompanied by additional vitta on each side) or mesial row of spots, or disk uniformly colored 17

17. Abdominal venter pale with dark mesial vitta (sometimes in addition a lateral vitta on each side) or a mesial row of spots 31

– Abdominal venter dark (excepting pale lateral margins and small subspiracular spots) or pale and without mesial vitta (occasionally on fifth visible sternite a thin dark mesial line which rarely continues interruptedly onto base of one or more preceding sternites) 18

18. Abdominal venter entirely dark brown to black excepting pale lateral margins and small subspiracular spot on each side of some or all sternites (C. Amer., W. Indies) *M. cubrosa* (Dallas)

– Abdominal venter pale 19

19. Dark spot at distal end of supracoxal clefts, that above mesocoxae larger than least diameter of tibiae; antennae nearly uniform in color (W. Indies, Middle Amer., S. Amer.) *M. angustata* Stål

– Distal end of supracoxal clefts immaculate or with tiny dark mark; at least last antennal segment bicolored with proximal part pale 20

20. Humeral angles acute to spinose and directed obliquely cephalad, or spinose and curved strongly dorsad (Middle Amer.) *M.* **lunara** n. sp.

– Humeral angles obtuse, or acute to spinose and slightly retroarcuate or directed laterad 21

21. Females 22

– Males 26

22. Basal plates inconspicuously punctate, with fine curved wrinkles; distance from imaginary line drawn through lateral angles of basal plates to most distal margin of plate $^{4}/_{10}$ or less of distance from line

to base of plates at meson (Fig. 79) (West Indies, Middle America, South America) *M.* **isla** n. sp.
M. ypsilon (L.)

– Basal plates usually without wrinkles, with fine punctation; distance from imaginary line to most distal margin of basal plates $^{5}/_{10}$ or more of distance from line to base of plates at meson 23

23. Distance from imaginary line to most distal margin of basal plates usually $^{7}/_{10}$ or more of distance from line to base of plates at meson; punctation on sides of first visible abdominal sternite much weaker than on adjacent part of metathorax (northern South America) *M. maculata* Dallas

– Distance from imaginary line to most distal margin of basal plates usually $^{5}/_{10}$ to $^{6}/_{10}$ of distance from line to base of plates at meson; punctation on sides of first visible abdominal sternite about as strong as that on adjacent part of metathorax (but usually less dense) 24

24. Tiny dark mark present at distal end of supracoxal clefts (Middle America) *M. collaris* Dallas

– Pleura immaculate (occasionally faintly marked) at distal end of supracoxal clefts 25

25. Body length including membranes 7.0–8.5 mm (eastern South America) *M. notulifera* Stål

– Body length including membranes 5.0–6.9 mm (Greater Antilles) *M. albisignis* Stål

26. Dorsal margin of pygophore tuberculate near lateral limits (Fig. 76) (West Indies, northern South America, Central America) *M.* **isla** n. sp.

– Dorsal margin of pygophore smoothly curved 27

27. Dorsal margin of pygophore broadly and shallowly concave from caudal view, without mesial emargination or deep marginal impression on posterior surface (Fig. 80) (West Indies, South America, Middle America) *M. ypsilon* (L.)

– Dorsal margin of pygophore conspicuously emarginated or with deep marginal impression on posterior surface (Figs. 51, 44) 28

28. Dorsal margin of pygophore deeply emarginated from caudal view (Fig. 51) (northern South America) *M. maculata* Dallas

– Posterior surface of pygophore with semicircular mesial impression at dorsal margin, usually bordering shallow emargination (Fig. 44) 29

29. Tiny dark dot located at distal end of supracoxal clefts; proctiger truncate distally (Fig. 45) (Middle America) *M. collaris* Dallas

– Pleura immaculate (rarely faintly marked) 30

30. Proctiger with mesial spine on distal margin, serrate posterolaterally (Fig. 48); body length with membrane 7.0–8.5 mm (eastern South America) *M. notulifera* Stål
– Proctiger bilobed distally (Fig. 73); body length with membrane 5.0–6.9 mm (Greater Antilles) *M. albisignis* Stål
31. Humeral angles connected by narrow irregular calloused fascia concolorous with or little paler than disk of pronotum; legs and apex of scutellum usually bright, ferruginous (Brazil) *M.* **rugosa** n. sp.
– Pronotal disk not divided transversly by calloused fascia connecting humeral angles; apex of scutellum usually ivory 32
32. Mesial vitta on abdominal venter interrupted, usually lacking on fourth visible sternite and sometimes faint on third; when rarely present on fourth, vitta severely restricted (Colombia, Panama) *M. metallica* Stål
– Mesial vitta continuous or consisting of a row of spots 33
33. All of scutellum except base bordered in ivory (Mexico) *M. laevigata* Distant
– Sides of scutellum not or incompletely bordered in ivory 34
34. Dark spot at distal end of supracoxal cleft on mesocoxae larger than least diameter of tibiae; antennae nearly uniform in color (West Indies, Middle America, South America) *M. angustata* Stål
– Spot at distal end of supracoxal cleft on mesocoxae no larger than least diameter of tibiae; at least fifth segment of antennae usually bicolored with pale basal ring 35
35. Femora yellowish proximally, becoming rufous distally (Colombia, Venezuela) *M. fusca* Stål
– Femora almost uniformly colored excepting dark dots 36
36. Lateral margins of scutellum bordered along frena by pale callous 42
– Pale areas of scutellum confined to apex and basal spots 37
37. Anterolateral margins of pronotum decidedly concave from dorsal view 42
– Anterolateral margins of pronotum straight or nearly so 38
38. Males 39
– Females 41
39. Dorsal margin of pygophore from caudal view nearly straight, bearing on each side a short transverse marginal ridge (Fig. 65) (West Indies, southwestern United States to Colombia) *M. cubrosa* (Dallas)
– Dorsal margin of pygophore from caudal view concave 40
40. Small obtuse mesial production on posterior pygophoral margin from caudoventral view (Fig. 55); dorsum shiny metallic brown when viewed without magnification (Colombia, Peru, Ecuador) *M.* **dana** n. sp.

– Posterior margin of pygophore smoothly concave from caudoventral view; dorsum dull brown to fuscous when viewed without magnification (Argentina) *M. ambigua* Berg

41. Mesial margins of basal plates well separated except basally (Fig. 64) (West Indies, southwestern United States to Colombia) *M. cubrosa* (Dallas)

– Mesial margins of basal plates contiguous or nearly so for most of length (Fig. 54) (Colombia, Ecuador, Peru) *M.* **dana** n. sp.

42. Males 43

– Females 48

43. Dorsal margin of pygophore from caudal view moderately concave (Figs. 37, 39) 44

– Dorsal margin of pygophore from caudal view shallowly concave or truncate (Figs. 65, 67, 70) 45

44. Connexiva black with pale spot on each segment arching mesad from margin; an incomplete lateral vitta usually present on each side of mesial abdominal vitta (Mexico) *M. discoidea* (Dallas)

– Lateral margin of connexiva entirely pale; only mesial abdominal vitta well defined (Middle America, South America) *M. notulata* (H–S)

45. Posterior margin of pygophore from ventral view conspicuously notched mesially (Florida, West Indies, southwestern United States to Colombia and Venezuela) *M.* **pama** n. sp.

– Posterior margin of pygophore from ventral view weakly concave or convex 46

46. Small sharp tooth on dorsal margin of pygophore at beginning of cheveron shaped deflexed carina on posterior surface of pygophore (Fig. 67) (Middle America, Colombia) *M. pictiventris* Stål

– Dorsal margin of pygophore unarmed 47

47. Posterior margin of pygophore with short transverse marginal carina on each side; faint semicircular impression on surface of pygophore between carina and immediately beneath dorsal margin (Fig. 65) (West Indies, southwestern United States, Middle America) *M. cubrosa* (Dallas)

– Carinae absent on posterior margin of pygophore; surface impression extending from each side beneath central area at dorsal pygophoral margin (Yucatan) *M.* **faisana** n. sp.

48. Pale border of anterolateral pronotal margin intruding onto disk as indicated by arrow in Fig. 68 (Florida, West Indies, southwestern United States to Colombia and Venezuela) *M.* **pama** n. sp.

– Pale border if present not intruding onto disk 49

49. Viewed laterally, basal plates subvertical (West Indies, southwestern United States, Mexico) *M. cubrosa* (Dallas)

– Basal plates inclined 30 degrees or more from vertical 50

50. Mesial margins of basal plates concave (Middle America, Colombia, Peru) *M. notulata* (H–S)
 – Mesial margins of basal plates contiguous or nearly so for entire length 51
51. Basal plates entirely or almost entirely light brown (Yucatan) *M.* **faisana** n. sp.
 – Basal plates mostly fuscous 52
52. Lateral border of connexiva uniformly yellowish-brown (Middle America, Colombia) *M. pictiventris* Stål
 – Connexiva black, draped with yellowish brown between sutures (Mexico) *M. discoidea* (Dallas)

Mormidea lugens (Fabricius, 1775)

Cimex lugens Fabricius, 1775, p. 716—Herrich-Schäffer, 1840, p. 66, fig. 510.

Cimex albipes Fabricius, 1798, p. 535.

Cydnus lugens: Fabricius, 1803, p. 187.

Cimex gamma Fabricius, 1803, emendation (replacement name for *Cimex albipes* F.).

Pentatoma punctipes Palisot de Beauvois, 1805, p. 113 Hem. Pl. 8, fig. 6.

Pentatoma punctipes Say, 1825, p. 313 (as new species).

Pentatoma gamma: Say, 1831, p. 10.

Pentatoma lugens: Herrich-Schäffer, 1844, p. 96 (keyed).

Mormidea lugens: Stål, 1862, pp. 103–104 (description)—Stål, 1872, p. 19 (synonymy, records)—Uhler, 1872, p. 395 (records)—Uhler, 1876, p. 285 (records)—Uhler, 1877, p. 402 (records)—Uhler, 1878, pp. 376–377 (records)—Provancher, 1885, pp. 43–44 (synonymy, description)—Van Duzee, 1889, p. 2 (record)—Van Duzee, 1894, p. 171 (record)—Gillette & Baker, 1895, p. 14 (record)—Torre-Bueno, 1908, p. 225 (record)—Van Duzee, 1909, p. 155 (record)—Morse, 1910, p. 155 (record)—Olsen, 1912, p. 52 (hosts)—Van Duzee, 1912, p. 138 (Provancher det. verified)—(Parshley, 1914, p. 148 (records)—Barber, 1914, p. 522 (records)—Parshley, 1915, p. 174 (descriptive note)—Stoner, 1916, p. 306 (Ia. distribution)—Stoner, 1917, p. 44 (record)—Van Duzee, 1917, pp. 37–38 (synonymy, distribution)—Parshley, 1917, p. 19 (N. England distribution)—Hart, 1919, p. 188 (host)—Stoner, 1920, pp. 75–76 (description, hosts)—Britton, 1920, p. 82 (record)—Hussey, 1922, p. 13 (host)—Parshley, 1923, p. 761, Pl. 18, fig. 12 (descriptive note, records, host)—Stoner, 1925, p. 54 (on reeds) Blatchley, 1926, pp. 123–124 (keyed, description, hosts)—Leonard, 1926, p. 80 (records)—Torre-Bueno, 1939, p. 217 (keyed)—Froeschner, 1941, p. 129 (descriptive note, records)—Esselbaugh, 1946,

p. 676 (eggs)—Esselbaugh, 1948, pp. 23–25 (biology, hosts)—Decoursey & Esselbaugh, 1962, pp. 327–328, fig. 2 (nymph)—McDonald, 1966, p. 19, figs. 115–118 (male genitalia)—Mc Pherson, 1970, p. 48, fig. 31 (Mich. distribution)—Hoffman, 1971, p. 43 (record)—Oetting & Yonke, 1971, pp. 456–457 (biology, hosts)—Furth, 1974, pp. 27–28, fig. 12 (description, hosts, record)—Schaefer, 1974, p. 230 (trichobothria)—McPherson, 1974, pp. 940–941 (biology)—McPherson & Mohlenbrock, 1976, p. 148 (hosts, parasites).

Dorsum yellowish brown to medium brown with head, anterior part of pronotum and scutellum darker brown to black; ivory markings consist of part or all of pronotal collar usually, transverse callous behind cicatrices, anterolateral margins of pronotum, on scutellum submarginal callous along frena and marginal border apically, mesial spot at base of scutellum, costal margin of coria basally, and lateral margin of connexiva; membrane hyaline excepting large heavily fumose area at inner angle. Venter dark castaneous to black excepting ivory lateral margins of abdomen and posterolateral angle of metapleura. Legs including coxae and sometimes genital plates yellowish brown; coxae darkly punctate, femora and tibiae darkly dotted. Third antennal segment distally, all of last 2 segments excepting narrow basal rings, fuscous to black; remainder of antennae brownish yellow.

Humeri obtusely rounded, scarcely produced; anterolateral margins of pronotum shallowly concave or sinuous. Scutellum about as wide as long, 1.8–2.6 mm wide at base, 1.9–2.6 mm long. Body length with membranes 5.7–7.2 mm.

Basal plates densely punctate, their mesial margins contiguous and together tectiform; distal margins convex; surface impressed near lateral angles (Fig. 4).

Dorsal margin of pygophore sinuous, deeply emarginated mesially; emargination largely bridged by inferior ridge (Fig. 5).

Distribution.—Ontario and Quebec in Canada; from Maine to Florida and westward into the Dakotas, Wyoming, Colorado, Oklahoma and Texas in the United States; and Mexico (Tamaulipas). Uhler's (1887) report of this species in Cuba, reiterated often without indication of source, is undoubtedly erroneous.

I have seen specimens from Alabama, Arkansas, Georgia, Louisiana, Maryland, Mississippi, Tennessee and West Virginia, states for which no previous record seems to exist.

Comments.—There are several references to hosts of this species, but the insect has been reared through all nymphal instars only on a sedge (McPherson, 1974). However, the bug will feed on several diverse plants and may utilize a succession of hosts in the field.

This is the only North American species of the subgenus *Melanochila*.

Type.—Zimsen (1964) did not locate Fabricius' type material of this species.

Mormidea montandoni Kirkaldy, 1902

Mormidea montandoni Kirkaldy, 1902, p. 165.

Black above, with yellowish border on juga from apex caudad almost to ocelli, on base of head laterad of ocelli, on anterolateral and posterolateral margins of pronotum, on all sides of scutellum, and on costal margin of coria basally; callous traversing pronotum at posterior limit of cicatrices (but separated from anterolateral borders), callous along radial vein, connexiva where exposed, all yellowish; membrane darkly fumose. Venter basically yellowish with black markings; abdomen with 7 longitudinal black vittae, 3 on each side of mesial one; the two most lateral vittae on each side extend along thorax, these interrupted at posterior margin of prothorax and with complete or partial connections near anterior margin of mesothorax and both anterior and posterior margins of prothorax; black macule present on head anterior to antennifer, another beneath rostrum. Antennae black except about basal 7 tenths of last segment, and sometimes joints, yellow. Femora yellowish with broad preapical black band; tibiae black basally and distally, usually with a relatively narrow intermediate black band separating yellowish bands, sometimes with basal black band broken into macules.

Humeral angles little produced, acute, clearly emarginated on posterolateral margin; anterolateral pronotal margin shallowly concave, entire. Scutellum much longer than wide at base, 2.3–2.8 mm wide, 2.9–3.3 mm long. Body length with membranes about 7.0–8.1 mm.

Mesial margin of basal plates quite concave, contiguous basally, widely separated apically; basal plates compressed at acute apical angle; posterior margin of plates nearly straight (Fig. 6).

Dorsal pygophoral margin from caudal view moderately emarginated mesially, barely impressed on each side where dark marking begins on reflexed margin; macule at base of pygophore broad, black (Fig. 7). Parameres as in Figure 8.

Distribution.—Peru, Ecuador.

Comment.—From *M. bridarolli,* which is similar in appearance, this species is readily distinguished by the black leg bands. The legs of *M. bridarolli* have numerous scattered dark spots but no bands.

Type.—The type was not located.

Mormidea bridarolli Pirán, 1963

Mormidea bridarolli Pirán, 1963, p. 108–109.

The following differentiates *M. bridarolli* from *M. montandoni* and in part amplifies the original description.

Coria mesad of yellowish callous, or all of coria, and sometimes scutellum and pronotum posteriorly, brown to fuscous. Numerous dark spots scattered on femora and tibiae but no broad dark band. Dark ventral vittae (7 on abdomen, 2 on each side of thorax) usually absent or much reduced. Basal 2–3 tenths of fourth antennal segment as well as basal 5–6 tenths of last segment and usually at least basal portion of first three segments, pale.

Basal plates similar to those of *M. montandoni*, but mesial margins well separated throughout.

Reflexed dorsal margin of pygophore conspicuously impressed on each side; dark marking at base of pygophore and laterally on reflexed dorsal margin absent or represented by a few small spots. Parameres as in Figure 9.

Distribution.—Peru, Colombia (Putumayo), Ecuador and Bolivia (type locality: Chulumani, Sur Yungas, La Paz Dept.).

Comment.—The first antennal segment does not quite reach the apex of the head contrary to the statement in the original description that this segment surpasses the apex of the head.

Types.—The type material, in the private collection of A. A. Pirán, was not seen.

Mormidea purpurescens Van Duzee, 1931

Mormidea purpurescens Van Duzee, 1931, p. 93.

Black above; lateral border of head to ocelli, base of head narrowly to ocelli, anterolateral margins of pronotum, transverse callous across pronotum at posterior margin of cicatrices (but not extending to anterolateral border), costal margin of coria basally, and connexivum, all yellowish or ivory; membranes fumose. Venter brownish yellow, darkly marked as basal macule on disk of first visible abdominal sternite. Basal half of last antennal segment and basal 2 tenths of fourth pale, reminder of these segments fuscous. Femora and tibiae with numerous dark spots.

Anterolateral margins of pronotum moderately concave, entire; humeral angles somewhat produced laterad, narrowly rounded. Scutellum 2.5–2.8 mm wide at base, 2.5–2.7 mm long.

Mesial margin of basal plates concave, contiguous basally only; posterior margin slightly convex; acute apex of basal plates compressed, covered by dark macule.

Distribution.—Bolivia (La Paz) and Peru (Cuzco).

Comment.—Of the four species in the subgenus *Melanochila* this is the only one that has none of the scutellar margins bordered with ivory.

Type.—The female type, in the California Academy of Sciences, was examined.

Mormidea bovilla (Distant, 1887)

Euschistus bovillus Distant, 1887, p. 61—Synave, 1969, p. 5 (type data).
Mormidea bovilla: Bergroth, 1891, pp. 220–223—Bergroth, 1906, pp. 2–3 (generic placement reaffirmed).
Euschistus bovillus: Distant, 1899, p. 438.

Dorsum castaneous or brown; coria along basal half of costal margin, exposed part of connexiva and often tip of humeri paler; membranes fumose. Appendages and venter rather uniformly colored and lighter than dorsum, or almost concolorous with dorsum excepting pale narrowly calloused margins of abdomen.

Humeri cornute, sweeping upward, usually with a preapical tubercle on posterior margin (Fig. 10). Scutellar width at base subequal to length, 3.2–3.5 mm wide by 3.4–3.5 mm long. Body length with membranes about 9–10 mm.

Basal plates subtriangular, both mesial and posterior margins convex; mesial margins well separated at base, contiguous or nearly so at apical angles (Fig. 11).

Punctation on ventral surface of pygophore strong, rather sparce, irregularly arranged; dorsal margin from caudal view with broad, moderately deep, V-shaped emargination (Fig. 12).

Distribution.—Brasil (Mato Grosso, Minas Gerais, Rio de Janeiro); Ecuador (Napo-Pastaza); Surinam.

Comment.—The form of the humeri distinguishes this species. In transferring this species from *Euschistus* to *Mormidea*, Bergroth (1891) quipped "—il a le facies [of *Euschistus*], mais non les characteres." In fact, it does not closely resemble any other member of either genus.

Types.—In describing this species, Distant (1887) wrote: "One specimen is contained in the Van Volxem collection and a second unlocalised one, has been for years in my possession." Synave (1969) lists the Van Volxem specimen, among the type material in the Institut Royal des Sciences Naturelles de Belgique, as the holotype. Since the second specimen cannot be recognized surely, the Van Volxem specimen may be regarded as the sole specimen identifiable as one of the two syntypes. This specimen, a male, was examined.

Mormidea geographica (Fabricius, 1803)

Cimex geographicus Fabricius, 1803, p. 159.
Mormidea brevis Walker, 1867, p. 256, NEW SYNONYMY.
Mormidea geographica: Stål, 1868, p. 27 (description of type).
Euschistus brevis: Distant, 1899, p. 437.
Oenopiella testacea Ruckes, 1958, pp. 150–152, NEW SYNONYMY.

Dorsum light brown or castaneous, mottled on pronotum and scutellum with darker blotches; punctation dark castaneous to fuscous; thin impunctate line along meson of pronotum often continues onto scutellum, from each side of this line a pale vague ray diverges from anterior pronotal margin onto pronotal disk; anterior half of pronotal margin sometimes fuscous; membrane slightly fumose; connexiva concolorous with venter, marked by dark marginal spot on each side of sutures. Venter and appendages yellowish brown with thoracic punctures, dots on legs and usually distal 6–7 tenths of each of last two antennal segments fuscous to black.

Anterolateral margins of pronotum entire, sinuous, deeply concave before humeri; humeral angles spinose, directed laterad, slightly retroarcuate, deeply emarginated on posterolateral margin (Fig. 13). Scutellum as wide or a little wider at base than long, 2.1–3.0 across base, 2.0–2.8 long. Body with membrane about 6–7 mm long.

Basal plates almost uniformly colored; mesial margins sinuous, overlapping basally, contiguous distally, parenthetically separated subapically; posterior margin sinuous; apical angle of each plate acute (Fig. 14).

Posterior pygophoral margin with deep wide arcuate emargination from ventral view. Theca with pair of dorsal appendages attached internally (Fig. 15).

Distribution.—Bolivia (Beni); Brazil (Amazonas, Pará); Peru (Amazonas, Loreto, San Martin); and Venezuela (Amazonas). This species seems to be distributed through much of the drainage area of the Amazon River and its tributaries.

Comment.—Stål correctly noted the aberrance of this species within *Mormidea* and its similarity to *Euschistus,* in which genus Distant (1899) placed Walker's species. The insect has attributes of both genera. Although the male genitalia are like those of numerous *Euschistus* species, considering the difficulties of a practical classification of the subfamily it seems best simply to note the aberrant nature of the species and to leave undisturbed its generic placement.

Types.—The type of *Cimex geographicus*, a female, in the Universitetets Zoololgiske Museum, Copenhagen, of *Mormidea brevis*, a female, in the British Museum (Natural History) and of *Oenopiella testacea*, a male, in the American Museum of Natural History, were examined and found not to differ significantly other than in sex.

Mormidea speciosa Haglund, 1868

Mormidea speciosa Haglund, 1868, p. 155—Stål, 1872, p. 20 (keyed).

Head, band along anterior of pronotum to include cicatrices and extending submarginally with diminishing breadth toward humeri, and submarginal callous along basal part of frena light brown; anterolateral margins of pronotum, posterolateral margins thinly, costal margin of coria basally, apex of scutellum, and connexivum ivory; remainder of dorsum metallic green; punctation dense and strong on exocoria, rugose on pronotum and scutellum where metallic green, elsewhere on dorsum less dense and weaker; membrane darkly fumose. Venter brownish yellow, concolorously punctate excepting several weak dark punctures on prothorax; disk of abdomen smooth. Antennae entirely fuscous excepting basal segment, this pale beneath. Femora brownish yellow with black spots which distally become larger and coalesce; tibiae excepting a few small pale macules and tarsi fuscous.

Humeri acutely angular; anterolateral margins of pronotum nearly

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PLATE 2

Figs. 17–20. *M. cornicollis*. Fig. 17. Left humerus and anterolateral margin of pronotum. Fig. 18. Basal plates. Fig. 19. Pygophore, caudal view. Fig. 20. Superior ridge of pygophore, dorsal view.

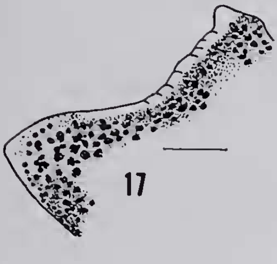
Figs. 21–24. *M. fusca*. Fig. 21. Basal plates. Fig. 22. Pygophore, caudal view. Fig. 23. Superior ridge of pygophore, dorsal view. Fig. 24. Left paramere, dorsomesial view with anterior part to right.

Figs. 25–27. *M. hamulata*. Fig. 25. Basal plates. Fig. 26. Pygophore, caudal view. Fig. 27. Superior ridge, dorsal view.

Figs. 28–30. *M. integella*. Fig. 28. Basal plates. Fig. 29. Pygophore, caudal view. Fig. 30. Inferior ridge of pygophore, dorsal view.

Figs. 31–34. *M. vaya*. Fig. 31. Apex of scutellum. Fig. 32. Genital plates: basal plates (bp); second gonocxae (gx2); ninth paratergites (pt9).

Dimensional line in Fig. 17 equals 0.5 mm and applies to Figs. 17–19, 21–22, 25–26, 28–30, 32–34. Figs. 20, 23–24, 27, 33 are twice this magnification. Fig. 31 is half this magnification.



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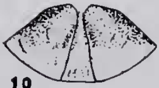

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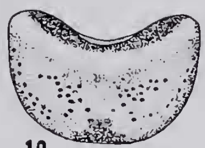

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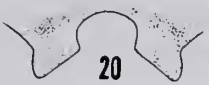

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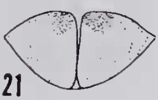

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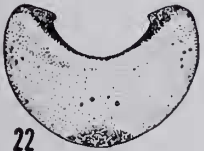

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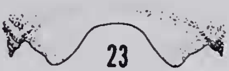

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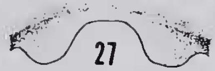

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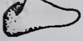

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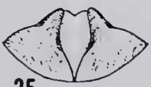

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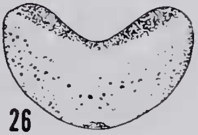

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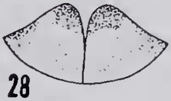

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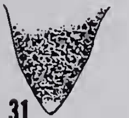

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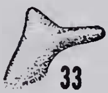

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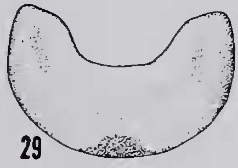

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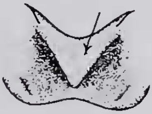

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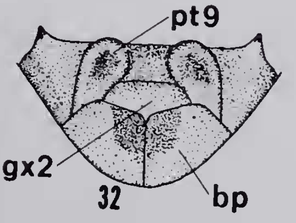

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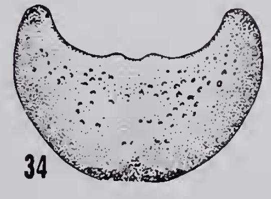

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straight, entire. Scutellum 2.5 mm wide at base, 2.9 mm long. Length of body with membranes about 7.5 mm.

Posterior margin of pygophore bisinuate from both ventral and dorsal view (Fig. 16); proctiger terminating convexly, distal margin reflexed.

Female unknown.

Distribution.—Amazon region. Known only from type.

Comment.—The metallic green color of most of the dorsum sets this species apart from all known congeners.

Type.—Male, in Naturhistoriska Riksmuseet, Stockholm. Examined.

Mormidea cornicollis Stål, 1860

Mormidea cornicollis Stål, 1860, p. 21—Stål, 1872, p. 21 (keyed).
Mormidea jheringi Berg, 1891, pp. 241–242. NEW SYNONYMY.
Mormidea iheringi: Buckup, 1961, p. 11 (record).

Dorsum black, ivory along anterolateral margins of pronotum, costal margins of coria basally, and lateral margin of connexiva; a small pale mesial spot present on base of scutellum, occasionally also behind each cicatrice and in each basal angle of scutellum; membranes fumose. Venter brownish yellow with black mesial vitta on abdomen; punctation, apex of humeri, small diffuse spot at distal ends of supracoxal clefts, and spiracles all black or fuscous; mesial abdominal vitta continuous, composed of contiguous subtrapezoidal spots, one on each sternite; many punctations on abdominal venter usually arranged in vague subspiracular vitta on each side. Basal segment of antennae ivory with dorsolateral dark dot or stripe distally; succeeding segments black with ivory basal ring, that on last segment occuping about half of segment.

Humeri acute or subacute; anterolateral margins entire, angularly concave, vertically rugose (Fig. 17). Scutellar width at base a little less than length, 2.8–3.1 mm wide by 2.9–3.3 mm long. Body with membranes about 8.5–10.5 mm long.

Distal two-thirds of basal plates black, roughened by a few diagonal furrows; mesial margins nearly straight, widely separated basally, contiguous or nearly so distally (Fig. 18).

Dorsal margin of pygophore concave from caudal view (Fig. 19). Superior ridge reduced to subquadrate projection on each side of meson. (Fig. 20).

Distribution.—Argentina (Misiones); Brazil (Paraná, Rio Grande do Sul, Rio de Janeiro, Santa Caterina, São Paulo).

Comment.—This species may be distinguished from *M. fusca* by the form of the basal plates and the superior ridge.

Types.—From the syntypes of *Moridea cornicollis* Stål the following specimen is selected as LECTOTYPE: female, labeled (a) Rio Jan (b) Stål (c) Type (d) Paratypus (e) 408/75 (f) Riksmuseum Stockholm. The PARALECTOTYPE is a male, labeled (a) Brasil (b) F. Sahlb (c) ♂ (d) Type (e) Typus (f) 145/56 (g) 407/75 (h) Riksmuseum Stockholm.

These specimens have the humeri produced to a degree found in only a small minority of specimens.

Regarding *Mormidea jheringi*, Berg's (1891) statement "El ejemplar tipico brasilero conserva el Museo de Montevido, los dos argentinos forman parte de mi coleccion hemipterologica." can be construed to mean that the Brazilian specimen is the holotype, but I do not so interpret it because he habitually treated all specimens of a type series as syntypes and labeled them "typus." Therefore, I designate as LECTOTYPE of *Mormidea jheringi* Berg a female labeled (a) Typus (b) Misiones (c) Mormidea jheringi Berg 1891 (d) Berg (e) Museo La Plata. PARALECTOTYPES: male, labeled (a) Typus (b) Misiones (c) 1378 (d) Col. Berg (e) Museo La Plata; male labeled (a) Brasil (b) Typus. (in Museo Nacional de Historia Natural, Montevideo).

Mormidea fusca Stål, 1872

Mormidea fusca Stål, 1872, p. 21.
Mormidea angulosa Stål, 1872, p. 21. NEW SYNONYMY.

Dorsum fuscous with humeral angles, pronotum anteriorly and head black, or entirely black; spot behind each cicatrice, small tooth at anterolateral angles of pronotum, narrow costal margins of coria basally, and lateral margins of connexiva brownish yellow; often in addition on scutellum a small mark in basal angles, another mesially at base, and apical margin pale; membranes fumose. Venter brownish yellow; punctation, thoracic sterna, small spot near distal end of supracoxal clefts, apex of humeri usually, mesial abdominal vitta, spiracles usually, all fuscous or black. Proximal 3 segments of antennae brownish yellow or rufous, distal 2 segments fuscous or black with basal ivory rings covering about a third of segment 4, half of last segment. Legs about color of venter with numerous black dots; femora usually becoming rufous on distal half.

Anterolateral margins of pronotum concave, entire; humeral angles usually acute, directed obliquely forward, with posterolateral margin of humeri and costal margin of coria forming continuous contour, but sometimes narrowly rounded to acute and produced laterad. Scutellum longer than wide, 2.7–3.0 mm wide at base, 2.9–3.2 mm long. Body with membrane about 8.5–9.5 mm long.

Basal plates impunctate or shallowly punctate, usually with a few fine longitudinal furrows, fuscous above second gonocoxae; mesial margins straight, usually somewhat divergent distally; posterior margins convexly arcuate (Fig. 21).

Dorsal margin of pygophore moderately concave from caudal view; a large black mesial spot at base of pygophore (Fig. 22). Superior ridge not reduced, mesially emarginated (Fig. 23). Parameres as in figure 24.

Distribution.—Colombia (Antioquia, Choco, Cundinamarca, Magdalena); Venezuela (Aragua, Merida, Miranda). Kirkaldy (1909) lists Bolivia and Trinidad under *M. angulosa*, but these records are doubtful.

Comment.—Most specimens of this species so far examined have femora that become rufous on the distal half, differing in this respect from congeners with a fuscous or black dorsum that is inconspicuously relieved by pale markings. *M. fusca* is much like *M. cornicollis* in appearance, but the two species differ vastly in the form of the basal plates and superior ridge.

Types.—From the type series of *Mormidea fusca* Stål, the following specimen is selected as LECTOTYPE: male, labeled (a) Bogata (b) Lindig (c) Type (d) Paratypus (e) 299/76 (f) Riksmuseum Stockholm. PARALECTOTYPES are: female, labels (a) (b) (c) (f) as lectotype (d) Paratypus (e) 300/76; female, labels (a) (b) (f) as lectotype (c) Allotypus (d) 144/56 (e) 302/76. The last specimen listed is proportionately a little broader and more densely punctate than common.

From the type series of *Mormidea angulosa* Stål, the following specimen is designated as LECTOTYPE: female, labeled (a) Bogota (b) Lindig (c) Type (d) angulosa Stål (e) Typus (f) 146/56 (g) 405/75 (h) Riksmuseum Stockholm. PARALECTOTYPE: female, (a) Bogota (b) Lindig (c) Type (d) Paratypus (e) 406/75.

Mormidea hamulata Stål, 1860

Mormidea hamulata Stål, 1860, p. 21—Stål, 1872, p. 21 (keyed).
Mormidea pullata Berg, 1891, pp. 242–243. NEW SYNONYMY.

Fuscous above, costal margins basally, connexiva, often a spot behind each cicatrice, mesial spot at base of scutellum and spot on disk of each corium brownish yellow to ivory; punctation except on endocoria dense, somewhat rugose on pronotum and scutellum; membrane heavily fumose. Venter brownish yellow, sometimes rufously suffused; lateral margins of abdomen and of metepimeron narrowly calloused, impunctate or nearly so, yellowish. Black or fuscous subtriangular or semicircular spot on each abdominal sternite usually solidly colored on first and fifth visible sternites, usually only outlined or partially obscure on intervening sternites, together forming a continuous or interrupted mesial vitta. Legs mostly rufous with small fuscous spots. Basal 3 segments of antennae nearly concolorous with venter, third often darker distally; last 2 segments fuscous with about basal 2 tenths of fourth and basal half of fifth segment ivory.

Anterolateral margins of pronotum entire, concave; humeral angles produced laterad, acute or subacute. Scutellum slightly longer than wide, 3.0–3.4 mm across base, 3.1–3.6 mm long. Body length with membranes about 9–10.5 mm.

Mesial and posterior margins of basal plates concave; apex of plates digitiform, black, longitudinally furrowed (Fig. 25).

Pygophore emarginate in broad even arc from caudal view, deeply impressed mesially beneath inferior ridge (Fig. 26); superior ridge semicircularly emarginated at meson (Fig. 27).

Distribution.—This species seems most common in southeastern Brazil (Distrito Federal, Rio de Janeiro, Santa Catarina). Specimens were seen from Argentina (Misiones), Bolivia (Santa Cruz) and Trinidad. Stål (1872) gave "Nova Granada" as a locality. The listing of *M. hamulata* by Stål (1862) in "Hemiptera mexicana—" must have been inadvertent. This error was perpetuated by Walker (1867, p. 254), Distant (1880, p. 56) and Uhler (1886, p. 6).

Comment.—Of sympatric congeners, *M. hamulata* resembles most closely *M. cornicollis*. The latter species is readily separable from the former by the pale border, visible from above, along the anterolateral margins of the pronotum, by the form of the basal plates, and by the shape of the superior ridge in the genital cup.

Types.—From the syntypes of *Mormidea hamulata* the following specimen is designated LECTOTYPE: male, labeled (a) Brasil (b) F. Sahlb. (c) ♂ (d) Type (e) Typus (f) 143/56 (g) 410/75 (h) Riksmuseum Stockholm. The three following specimens are PARALECTOTYPES: female, labeled (a) hamulata Stal (b) Type (c) Rio Jan (d) Allotypus (e) 411/75 (f) Riksmuseum Stockholm; female, labeled (a) Rio Jan (b) Stal (c) Paratypus (d) 412/75 (e) Riksmuseum Stockholm; male, labeled (a) Brasil (b) F. Sahlb. (c) Paratypus (d) 413/75 (e) Riksmuseum Stockholm.

The type of *Mormidea pullata* Berg, a male, in the Universidad Nacional de La Plata, Facultad de Ciencias Naturales y Museo, seems not to differ in any significant aspect from the specimens upon which Stål based the senior synonym *M. hamulata*.

Mormidea integella (Distant, 1893)

Euschistus integellus Distant, 1893, p. 456.
Mormidea integella: Rolston, 1974, p. 6.

Black above, or fuscous with humeri, pronotum anteriorly and head black; spot on disk of each corium paler; connexiva ivory; membranes heavily fumose. Venter pale yellow to brownish yellow; most punctures, sterna, small spots near end of supracoxal clefts, and mesial vitta of abdomen fuscous or black. Appendages basically brownish yellow; legs dotted with black; basal 3 segments of antennae specked with black, last two segments black excepting about basal 2 tenths of segment 4 and basal half of fifth segment.

Anterolateral margins of pronotum concave, entire; humeral angles narrowly rounded. Width of scutellum less than length, 3.1 mm wide at base, 3.3 mm long. Body with membranes about 8–9 mm.

Basal plates impunctate, convex; mesial margins straight, contiguous basally, slightly divergent distally; posterior margins sinuous; apical angles rounded, fuscous (Fig. 28).

Dorsal margin of pygophore from caudal view truncately concave (Fig. 29); inferior ridge produced caudad into triangle extending nearly to pygophoral margin (Fig. 30).

Distribution.—Known only from the type locality, Chiriquí, Panama. Specimens were again captured there in 1974.

Comment.—Of those species of *Mormidea* that are fuscous or black above save for a few inconspicuous paler markings, only *M. integella* and *M. vaya* are known to occur in Panama. The remarkably formed inferior ridge of *M. integella* is distinctive within the genus.

Types.—Distant (1893) in describing this species stated that he had seen only 6 specimens. The number is no doubt a typographical error, perhaps an inversion, because there are 9 specimens in the British Museum (Natural History) the labeling of which indicates that all belong to the syntype series. From these syntypes the following specimen of *Euschistus integellus* Distant is designated LECTOTYPE: Male, labeled (a) Type (b) V. de Chiriquí, 25–4000 ft. Champion (c) B.C.A. Hem. I Euschistus integellus (d) Brit. Mus. Type No. Hem. 1040. The remaining 8 specimens, the PARALECTOTYPES, consist of 6 males and 2 females bearing labels indicated above as (b) and (c).

Mormidea **vaya** n. sp.

Black above, except exposed connexiva, mesial dot at base of scutellum and very apex of scutellum pale; membrane heavily fumose. Venter brownish yellow; on abdominal disk first and last sternites and anterior margin of intervening segments black, as well as spot at base of pygophore and thoracic sterna; punctation black, rather dense and irregular on each side of abdomen, sparce on abdominal disk. Legs brownish yellow with black spots; apex of tibiae and all tarsi black. Antennae black, with very base of third segment, basal 2 tenths of fourth and basal half of last brownish yellow.

Humeri produced laterad, narrowly rounded at apex; anterolateral margins of pronotum entire, sinuous. Scutellum about 3.4 mm wide at base, 3.6 mm long; apex acute (Fig. 31). Body length with membrane about 9.7 to 10.2 mm.

Mesial margins of basal plates contiguous; most distal part of posterior margin above paratergite 9 (Fig. 32); apical angles fumose.

Dorsal pygophoral margin broadly concave to moderate depth; emargination sinuous mesially (Fig. 34). Digitiform projection on parameres (Fig. 33).

Distribution.—Panama.

Types.—Holotype: female, labeled Cerro Campana 800M, Distr. Chame, Panama, 2-V-76, Col. H.D. Engleman. USNM type no. 72135. Segments 4 and 5 of the right antenna are fused, without the pale band at the base of 5. Paratype: male, labeled (a) El Valle, Panama, Prov. Cocle 500 M, 2-VII-74 (b) Col. Henry Hespenheide. (HDE)[1].

Comment.—The other black or fuscous species of *Mormidea* without a conspicuously pale scutellar apex that are or may be sympatric with this species are *M. fusca* and *M. integella.* Females of *M. vaya* are distinguished from these species by the basal plates. The unique inferior ridge of *M. integella* identifies this species. Differences in the pygophoral margin and parameres (Figs. 32, 24) and usually the scutellar apex and femoral coloration separate *M. vaya* and *M. fusca.*

Mormidea discoidea (Dallas, 1851)

Rhaphigaster discoideus Dallas, 1851, p. 290.
Mormidea discoidea: Walker, 1867, p. 555—Stål, 1872, p. 20 (keyed, description).
Mormidea notulata: Distant, 1880, pp. 55–56 (in part)—Distant, 1889, p. 328 (in part).

Dorsum black; ivory spot present behind each cicatrice, mesially at base and at apex of scutellum, on disk of each corium; small blunt tooth at anterolateral angles of pronotum and lateral margin of coria basally also ivory; connexiva black with yellowish brown marginal macule of various shapes on each segment; membranes fumous. Venter brownish yellow with broad border along lateral cephalic margins, thoracic sterna, thoracic punctures, humeri near apex, a continuous mesial abdominal vitta and on each side basally a diffuse lateral subspiracular vitta, and spiracles fuscous or black. Basal segment of antennae brownish yellow, usually with dorsolateral longitudinal dark streak; following segments darker, distal two fuscous with about basal 2 tenths of each pale.

Anterolateral margins of pronotum subangularly concave, entire; humeri little produced, rounded. Scutellum a little longer than wide at base, 2.8—3.1 mm wide by 3.0–3.4 mm. long. Body length with membrane about 8.5–10 mm.

Basal plates almost entirely covered by large fuscous spot; mesial margins contiguous, posterior margin unevenly concave (Fig. 35).

Mesial 2 thirds of dorsal pygophoral margin moderately concave from caudal view; surface of pygophore unevenly contoured, with black mesial spot at base (Fig. 37). Parameres with process directed posterodorsad (Fig. 36).

Distribution.—Mexico (Colima, Guanajuato, Guerrero, Jalisco, Michoacán, Morelos, Oaxaca). Records given by Distant (1880, 1889) must be disregarded because he confused this species with the more common *M. notulata*.

Comment.—Distant (1880) regarded *M. discoidea* as a junior synonym of *M. notulata*. Although these two species are similar in appearance, the genitalia differ appreciably in both sexes.

Type.—Male, in British Museum (Natural History). Examined.

Mormidea notulata (Herrich-Schäffer, 1844)

Pentatoma notulatum Herrich-Schäffer, 1844, p. 100, fig. 765.
Mormidea notulata: Dallas, 1851, p. 213—Stål, 1862, p. 103 (descriptive

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PLATE 3

Figs. 35–37. *M. discoidea*. Fig. 35. Basal plates. Fig. 36. Left paramere, dorsomesial view with anterior part to right. Fig. 37. Pygophore, caudal view.

Figs. 38–40. *M. notulata*. Fig. 38. Basal plates. Fig. 39. Pygophore, caudal view. Fig. 40. Left paramere, dorsomesial view with anterior part to right.

Figs. 41–42. *M. angustata*. Fig. 41. Basal plates. Fig. 42. Pygophore, caudal view.

Figs. 43–45. *M. collaris*. Fig. 43. Basal plates. Fig. 44. Pygophore, caudal view. Fig. 45. Proctiger, dorsal view.

Figs. 46–48. *M. notulifera*. Fig. 46. Basal plates. Fig. 47. Pygophore, caudal view. Fig. 48. Proctiger, dorsal view.

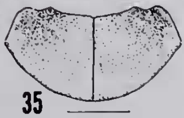
Figs. 49–51. *M. maculata*. Fig. 49. Basal plates. Fig. 50. Proctiger, dorsal view. Fig. 51. Pygophore, caudal view.

Figs. 52–53. *M. rugosa*. Fig. 52. Basal plates. Fig. 53. Pygophore, caudal view.

Figs. 54–55. *M. dana*. Fig. 54. Basal plates. Fig. 55. Pygophore, caudoventral view.

Figs. 56–57. *M. faisana*. Fig. 56. Basal plates. Fig. 57. Pygophore, caudoventral view.

Dimensional line in Fig. 35 equals 0.5 mm and applies to Figs. 35, 37–39, 41–57. Figs. 36, 40 are twice this magnification.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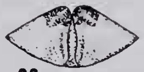
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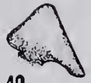
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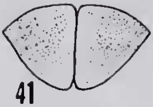
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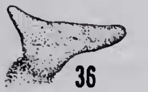
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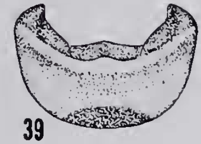
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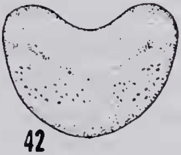
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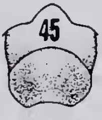
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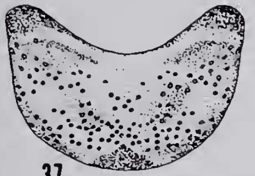
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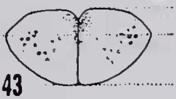
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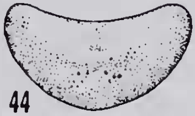
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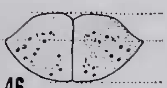
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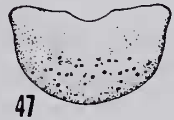
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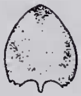
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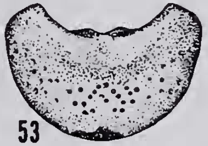
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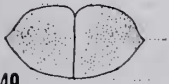
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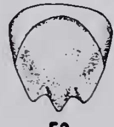
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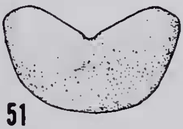
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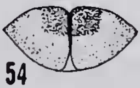
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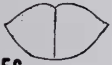
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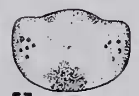
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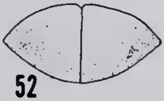
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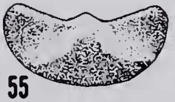
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note)—Stål, 1872, p. 20 (keyed, synonymy)—Distant, 1880, pp. 55–56 (in part), Pl. 5, fig. 12—Distant, 1889, p. 328 (in part).

Appearing black, but coria, scutellum and basal disk of pronotum actually in large part yellowish brown between dense black punctation; margin of coria basally and connexiva laterally, ivory; small ivory spot located behind each cicatrice, in each basal angle, mesially at base of scutellum, and on disk of each corium; apex of scutellum covered by large white or ivory spot; spot in basal angles of scutellum occasionally elongated as submarginal band along frena. Venter yellowish brown with sparse black punctation on thorax; lateral band of punctures on abdomen often in part black mesad of black spiracles; sterna and spot at distal end of supracoxal clefts black; mesial vitta on abdomen black, irregularly margined, composed of more or less triangular spots, one on each segment. Basal segment of antennae pale with fuscous streak distally on outer side; next 2 segments fuscous, pale at joint between them; distal 2 segments fuscous excepting pale band around basal fourth of penultimate segment and basal third of last segment.

Humeri narrowly rounded to spinose; anterolateral margins concave, often angularly so, entire. Scutellum longer than basal width, 2.3–2.7 mm wide, 2.7–3.2 mm long. Body length with membrane about 7.8–9.0 mm.

Basal plates subtriangular, mesial margins clearly concave, distal margin nearly straight; apical angle of each plate covered by large dark spot (Fig. 38).

Dorsal margin of pygophore moderately concave from caudal view, concavity extending for entire width, occasionally with small mesial convexity (Fig. 39); posterior margin from ventral view usually straight, occasionally somewhat trisinuate; black mesial spot present on ventral surface of pygophore at base. Parameres triangular without a posterodorsal process (Fig. 40).

Distribution.—From Nuevo Leon state, Mexico, southward throughout Central America. Also present in Colombia (Magdalena) and Peru (Lambayeque).

Comment.—Similar to *M. discoidea* in general appearance, the males of the two species are best separated by the parameres and the females by the basal plates.

Type.—The type was not located.

Mormidea angustata Stål, 1862

Mormidea angustata Stål, 1862, pp. 102–103—Stål, 1872, p. 20 (keyed)—Distant, 1880, p. 55, Pl. 5, fig. 10 (synonymy)—Barber & Bruner, 1932, pp. 250–251 (keyed, descriptive note)—Barber, 1939, pp. 287–288 (keyed, hosts)—Wolcott, 1936, p. 175 (record)—Wolcott, 1948, p. 191 (hosts)—Alayo, 1967, pp. 10, 11, Pl. 9, figs. 1, 2 (keyed, synonymy, descriptive note).

Mormidea pulchella Walker, 1868, pp. 552–553—Distant, 1900, p. 430 (generic placement). NEW SYNONYMY.

Mormidea lemoulti Bergroth, 1914, pp. 426–427. NEW SYNONYMY.

Mormidea ypsilon: Wolcott, 1923, p. 253—Wolcott, 1936, p. 175 (misdetermination fide Wolcott, 1948).

Dorsum light brown with darker punctation; humeral angles black at apex; ivory spot varying in size usually present behind each cicatrice, also mesially at base and at apex of scutellum, and on each corium; submarginal callous extending from each basal angle to distal end of frenum usually ivory; punctation on exocoria often rufous, color suffusing from punctures; endocoria semitransparent; connexiva light brown; membrane hyaline. Venter brownish yellow; thorax darkly punctate with black spot near distal end of supracoxal clefts, those spots on mesothorax and metathorax largest, as large or larger than diameter of tibiae; abdominal venter immaculate or with mesial row of brown to fuscous spots, each at base of sternite. Basal segment of antennae usually lighter in color than remaining segments, these light brown to dark castaneous or fuscous, none with white basal band.

Humeri acute to spinose; anterolateral margins of pronotum entire, sinuous or concave. Scutellum longer than wide at base, 2.2–2.5 mm wide by 2.7–3.1 mm long. Body with membrane about 7–8 mm long.

Basal plates almost uniformly colored, contiguous at mesial margins, each evenly convex at posterior margin (Fig. 41).

V-shaped emargination in dorsal margin of pygophore bordered by impunctate tumescence on posterior pygophoral surface (Fig. 42).

Distribution.—Apparently widely spread, but uncommon, in Middle America, South America and the West Indies. Specimens examined were from Brazil (Distrito Federal, Goiás, Mato Grosso, Minas Gerais, Pará), Cuba, Dominican Republic, Ecuador, Guyana and Nicaragua. Additionally, the species is reported from French Guiana, Mexico and Puerto Rico.

Comment.—The large dark spot near the distal end of the supracoxal clefts on the metathorax and mesothorax, with a smaller spot on the prothorax, is diagnostic.

Types.—The specimens upon which Bergroth based the name *Mormidea lemoulti* were not located. His description fits some specimens of *M. angustata* and his diagnosis nearly all of them: "Bien voisine de *M. angustata* Stål dont elle se distingue cependant facilement par les deux callosités du pronotum et par les angles apicaux du sixiéme segment abdominal prolongés en une épine aiguë dirigée en arrière." The two calloused spots on the pronotum are sometimes absent in *M. angustata* but are usually present and variable in size. The acuteness of the apical angles of the sixth (fifth visible) abdominal segment and of the humeral angles is correlated and both are usually spinose.

The type of *Mormidea pulchella* Walker, a female, in the British Museum (Natural History) is an ordinary example of the species, with spinose humeri and a mesial row of spots on the abdominal venter.

The type of *Mormidea angustata* Stål, a female, in the Signoret collection conserved by the Naturhistorisches Museum Wien, was not examined.

Mormidea collaris Dallas, 1851

Mormidea collaris Dallas, 1851, pp. 211–212—Stål, 1872, p. 19 (keyed)—Distant, 1880, p. 54, Pl. 5, fig. 9 (descriptive note, records)—Distant, 1889, p. 328 (records).

Dorsum usually light brown, posterior disk of pronotum darker, grading to fuscous on humeri; frequently all of dorsum dark brown to fuscous excepting anterior pronotal disk and head which are light brown to yellowish brown; punctation fuscous; large ivory spot behind each cicatrice occasionally reduced, rarely absent; small tubercle at anterolateral angles of pronotum, often an impunctate border along about half of anterolateral margins just cephalad of humeri, costal margin of coria basally, all pale yellow; submarginal ivory callous along frena sometimes reduced to large macule in basal angles, sometimes expanded to cover most of scutellum; mesial spot at base and at apex of scutellum, large spot on disk of coria, and connexiva ivory; membranes lightly fumose. Venter pale yellow; dots at distal end of supracoxal clefts, mesial blotch on first visible sternite of abdomen, suture mesially between this and following sternite, dark; linear mesial vitta often present on ultimate sternite usually faint, sometimes extending discontinuously onto preceding one or two sternites; punctation laterally on abdominal disk nearly as strong as that on thoracic pleura. Antennae light to dark brown with distal 7 to 8 tenths of each of last two segments fuscous.

Anterolateral margins of pronotum slightly sinuous, entire; humeri usually little produced, lateral angle narrowly rounded or acute, sometimes spinose and somewhat retroarcuate. Scutellum longer than wide, 2.2–2.8 mm wide at base, 2.6–3.4 mm long. Body with membranes about 7.5–9.5 mm long.

Mesial margins of basal plates contiguous at meson, posterior margins convex, usually unevenly so (Fig. 43); distance from imaginary line drawn through lateral angles of basal plates to most distal margin of plates usually 5–6 tenths, rarely less, of distance from line to base of plates at meson.

Dorsal pygophoral margin shallowly concave from caudal view, posterior surface conspicuously depressed at dorsal margin (Fig. 44). Proctiger as in Figure 45.

Distribution.—From Sonora and San Luis Potosí, Mexico, southward into Panama. Stål (1872) records this species from Colombia, as well as Mexico, and this record is probably correct.

Comment.—This species varies considerably in color and markings. Some specimens are colored and marked like those of *M. maculata*, a species whose range includes Colombia. Females of the two species may usually be separated by proportional differences in the basal plates and the relative strength of punctation on the abdominal venter. Males of these two species are readily separable by the pygophore.

Type.—Male, in the British Museum (Natural History). In the form of the humeri, color and markings, the type is representative of only about 5 percent of the males. The humeri are spinose, the scutellar callous along the frena is reduced to a large macule in each basal angle, and the dorsum is strongly bicolored with the anterior pronotal disk and head much lighter in color than the remainder of the dorsum. Distant (1880) figured a specimen that is similar in appearance to the type.

Mormidea notulifera Stål, 1860

Mormidea notulifera Stål, 1860, p. 21—Stål, 1872, p. 21 (keyed)—Berg, 1878, p. 300 (record)—Buckup, 1961, p. 11 (record).

Light brown to fuscous above, usually darkest at humeri, sometimes with pronotum and/or base of scutellum darker than remainder of dorsum; ivory dot behind each cicatrice, medially at base of scutellum, and on disk of each corium varying in size, sometimes absent on pronotum; pale callous in each basal angle of scutellum usually present and extending submarginally along frenum; scutellar apex ivory; connexiva brownish yellow; membranes lightly fumose. Venter brownish yellow; punctation concolorous, close and somewhat coarse on pleura, subequal in strength but more sparse along sides of abdominal venter. Basal segment of antennae usually brownish yellow with darker lateral stripe, next two segments brown, distal two black with basal 2 tenths of fourth and basal 2 to 3 tenths of fifth ivory.

Humeri little produced, rounded; or produced laterad, somewhat retrorse, spinose; anterolateral margins of pronotum sinuous, entire. Scutellum longer than wide, 2.3–2.6 mm across base, 2.6–3.0 mm long. Length of body with membranes about 7–8.5 mm.

Mesial margins of basal plates contiguous, together forming slight tectiform elevation; posterior margins convex; distance from imaginary line drawn through lateral angles of basal plates to most distal part of posterior margin usually 5 to 6 tenths of distance from line to base of plates at meson. (Fig. 46).

Margin of pygophore shallowly emarginate mesially from both caudal and ventral views (Fig. 47). Proctiger as in Figure 48.

Distribution.—Argentina (Misiones); Brazil (Bahia, Ceará, Distrito Federal, Paraná, Minas Gerais, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Santa Catarina); Peru (Loreto); Uruguay (Rivera).

Comment.—In appearance this species is most like *M. maculata*. Males of the two species are easily distinguished by the markedly different proctiger and pygophore. The females may usually be separated by the strength of the punctation along the sides of the abdomen relative to that on the thoracic pleura. About 80% of the females of these two species are separable by the proportional length of the basal plates distad and basad of an imaginary line drawn transversely through the lateral angles of the plates.

Type.—The holotype, in the Naturhistoriska Riksmuseet, Stockholm, is a female that, unfortunately, is not very representative of the species. It lacks the usual pale spot behind each cicatrice, the mark in the basal angles of the scutellum is only obscurely elongated along the frena, and the proportional length of the basal plates basad and distad of a line through the lateral angles is near the mean for *M. maculata*. The abdominal punctation is characteristic, however.

Mormidea maculata Dallas, 1851

Mormidea maculata Dallas, 1851, p. 212.

Color and markings variable, usually medium brown grading to dark castaneous on basal disk of scutellum and exocoria, to black on humeri; ivory spot of variable size behind each cicatrice, on disk of each corium, on scutellum mesially at base and apex, and in basal angles; spots on pronotum often much reduced or absent, those in basal angles sometimes punctate and spread over much of scutellum; membrane fumose. Venter yellowish brown, most punctures concolorous, with or without small dark dot at distal end of supracoxal clefts; punctation laterally on abdominal sternites about as strong as that on metapleura. Proximal three segments of antennae almost uniformly colored, light brown to fuscous; distal two segments fuscous with basal fourth of each pale.

Humeral angles narrowly rounded to spinose; anterolateral margins of pronotum shallowly concave, entire. Scutellum longer than wide, 2.3–2.5 mm wide, 2.6–3.1 mm long. Body length with membrane about 7.4–8.6 mm.

Distance from imaginary line through lateral angles of basal plates to most distal margin of plates from 6 to 9 tenths of distance from line to base of plates at meson (Fig. 49); mesial margins contiguous, elevated; posterior margins convex; apical angles covered by dark apot.

Deep mesial emargination covering two-thirds of dorsal pygophoral margin V-shaped from caudal view, sometimes slightly sinuous (Fig. 51); punctation in transverse depression beneath emargination sparse, fine, black. Proctiger as in Figure 50.

Distribution.—Northern South America south to northern Brazil (Acre, Amazonas, Pará), Bolivia (Bení), and Peru (Amazonas, Huánuco, Junin, Loreto, Madre de Dios, Pasco). A common species in Colombia.

Comments.—This species most resembles *M. notulifera,* both varying greatly in color and markings. Males of the two species are easily separated by the proctiger and the pygophore, but identification of females on the basis of basal plate proportions and relative strength of punctation on the abdominal venter is not always certain.

Type.—The holotype, a male, in the British Museum (Natural History) was examined.

Mormidea **rugosa** n. sp.

Ferruginous to black above, usually with a pale spot behind each cicatrice, on disk of each corium, and on scutellum mesially at base, in each basal angle and at apex; above spots, lateral margins of connexiva, costal margin of coria on basal fourth, and lateral margins of pronotum dull yellow to rufous; punctation black, usually contrasting with background; membrane slightly fumose. Venter brownish yellow; punctation black, sparse, strong; mesosternum (excepting median carina) and metasternum black; mesial vitta on abdominal venter consisting of broad basal macule on first visible sternite, a small spot (sometimes lacking) near middle of next, and progressively larger macule on each succeeding sternite; each sternite usually bearing subspiracular patch of denser punctation, together forming vague lateral vitta on each side; spiracles pale or peritreme narrowly dark. Legs brownish yellow to rufous with dark dots; antennae fuscous or black excepting mesial face of first segment, narrow basal ring on fourth, and basal 3 tenths of fifth segment, pale.

Pronotum traversed between humeri by calloused irregular fascia; humeral angles narrowly rounded to acute; anterolateral margins sinuous, entire. Scutellum 2.5–2.7 mm wide at base, 2.6–3.0 mm long. Body length with membrane about 7.9–8.7 mm.

Basal plates weakly punctate, apical angles immaculate or faintly darkened; mesial margins contiguous, posterior margins evenly convex (Fig. 52).

Dorsal pygophoral margin broadly and moderately concave from caudal view (Fig. 53), labiate from lateral view; a median dark spot basally.

Distribution.—Paraná and Santa Catarina states, Brazil.

Comment.—Most specimens are recognizable by the ferruginous color. The transverse calloused fascia between the humeri is diagnostic.

Types.—Holotype: male, labeled; Brasilien, Nova Teutonia, 27°11′B52°23′L, Fritz Plaumann. 200–500 M (on edge). XII 1973 (on opposite edge). Deposited in Museu Nacional, Universidade do Brasil. Paratypes. 15♂♂, 12♀♀. Labeled as holotype excepting dates: I-6-1960 (♂♀AMNH); XI-1-1958 (♀AMNH); XI-19-1959 (♀AMNH); X-1967 (♀AMNH); XI-1973 (♂CAS); II-1973 (♂CAS); XI-1973 (♂UNLP); II-1974 (♀, 4♂♂LHR); X-1974 (♂BMNH, ♀USNM); XI-1974 (♂FSCA, ♂TAMU, ♂MRCN, ♀FSCA, ♀NR); II-1974 (♂NR); XII-1974 (♀UNLP); XII-1975 (3♀♀LHR); (a) Cauna, S. Cath., Brazil XII-1945 (b) A. Maller, Coll., Frank Johnson Donor (♂AMNH); New Teutonia, Brazil Jan. 1939, Fritz Plaumann (♂AMNH).

Mormidea albisignis Stål, 1872

Mormidea albisignis Stål, 1872, p. 20—Barber & Bruner, 1932, p. 251 (keyed, descriptive note)—Alayo, 1967, pp. 10, 11 (keyed, synonymy, descriptive note).

Light to dark castaneous above with darker punctation at least on head; anterolateral margins of pronotum, costal margin of coria basally, spot on

→

PLATE 4

Figs. 58–59. *M. metallica.* Fig. 58. Genital plates: ninth paratergites (pt9). Fig. 59. Pygophore, caudoventral view.

Fig. 60. *M. ambigua.* Pygophore, caudal view.

Figs. 61–63. *M. paupercula.* Fig. 61. Left humerus and anterolateral margin of pronotum. Fig. 62. Basal plates. Fig. 63. Pygophore, caudal view.

Figs. 64–65. *M. cubrosa.* Fig. 64. Basal plates. Fig. 65. Pygophore, caudal view.

Figs. 66–67. *M. pictiventris.* Fig. 66. Basal plates. Fig. 67. Pygophore, caudal view.

Figs. 68–70. *M. pama.* Fig. 68. Left humerus and anterolateral margin of pronotum. Fig. 69. Basal plates. Fig. 70. Pygophore, caudal view.

Figs. 71–73. *M. albisignis.* Fig. 71. Basal plates. Fig. 72. Pygophore, caudal view. Fig. 73. Proctiger, dorsal view.

Figs. 74–75. *M. laevigata.* Fig. 74. Basal plates. Fig. 75. Pygophore, caudal view.

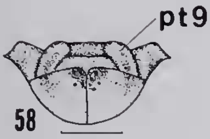
Fig. 76. *M. isla.* Pygophore, caudal view.

Figs. 77–78. *M. v-luteum.* Fig. 77. Basal plates. Fig. 78. Pygophore, caudal view.

Figs. 79–81. *M. ypsilon.* Fig. 79. Basal plates. Fig. 80. Pygophore, caudal view. Fig. 81. Left paramere, dorsomesial view with anterior part to right.

Fig. 82. *M. lunara.* Left paramere, dorsomesial view with anterior part to right.

Dimensional line in Fig. 58 equals 0.5 mm and applies to all figures except Fig. 68 which is half this magnification and Figs. 81–82 which are twice this magnification.



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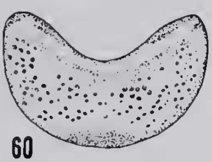

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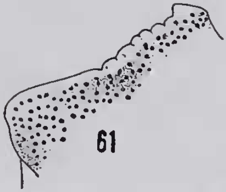

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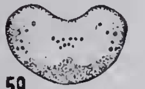

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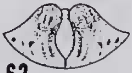

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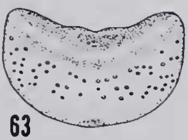

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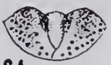

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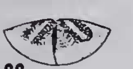

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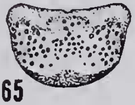

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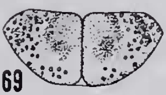

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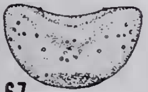

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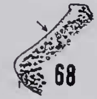

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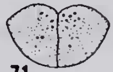

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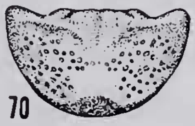

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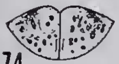

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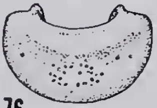

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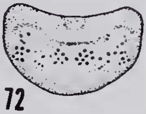

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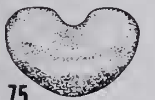

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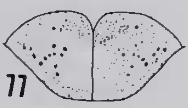

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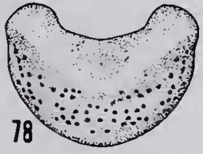

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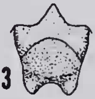

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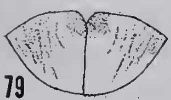

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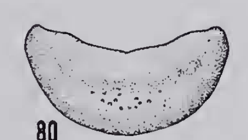

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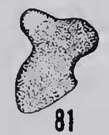

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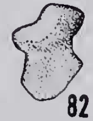

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disk of each corium, rather broad band curving along each frena from basal angle of scutellum to submarginal position near distal end of frenum, mesial spot at base of scutellum and spot at posterior margin of each cicatrice, all ivory, with spots varying greatly in size; basal disk of scutellum within parenthetical ivory markings, coria about or distad of ivory spot, posterolateral surface of humeri and pronotal surface laterad of cicatrices, all sometimes fuscous to black; lateral margins of connexiva pale; membranes lightly fumose or frosty. Venter brownish yellow with pleura sometimes dark in large part, occasionally becoming as dark as dorsum in area laterad of evaporative surface; punctation excepting on head often dark and often strong. Distal 7–9 tenths of last antennal segment, distal 7–8 tenths of fourth, and sometimes distal tenth of third fuscous with remainder of antennae brownish yellow.

Anterolateral margins of pronotum moderately concave, entire; humeri narrowly rounded, or produced laterad as slightly retroarcuate spine. Scutellum 1.9–2.2 mm wide at base, 1.9–2.4 mm long. Body with membranes about 5.0–6.9 mm long.

Basal plates roughly punctate, nearly uniform in color, contiguous and subtectiform along mesial margins, each plate evenly arcuate along posterior margin; distance from imaginary line drawn through lateral angles of basal plates to most distal margin of plates about 5 tenths of distance from line to base of plates at meson (Fig. 71).

Dorsal margin of pygophoral surface impressed mesially (Fig. 72). Proctiger as in Figure 73.

Distribution.—Cuba and Hispaniola.

Comment.—Although some specimens superfically resemble *M. ypsilon*, this species seems to belong in a group containing *M. collaris, M. maculata* and *M. notulifera*, none of which is sympatric with it.

Type.—Female, in the Naturhistoriska Riksmuseet, Stockholm. Not seen.

Mormidea laevigata Distant, 1880

Mormidea laevigata Distant, 1880, p. 55, Pl. 7, fig. 3.

Light to dark brown above, anterior disk of pronotum and head somewhat paler than remainder of dorsum; punctation concolorous with darkest part of dorsum; anterior and anterolateral pronotal margins, area between cicatrices, two large spots at posteromedial margins of cicatrices, and transverse band of varying width between humeri more or less confluent, pale yellow or ivory; equally pale: mesial spot at base of scutellum, narrow border around scutellum except at base, costal margin basally, spot on disk of each corium, lateral margins of connexiva; membranes hyaline. Venter pale brownish yellow with castaneous to fuscous punctures on head, pleura, and in broad subspiracular band on abdomen, often with longitudinal vitta as dark as dorsum covering thorax between subcoxae and lateral margin and extending over subspiracular punctations of abdomen; sterna dark; spots forming mesial vitta on abdomen solidly colored on first and fifth visible sternites, only outlined, sometimes faintly so, on intervening sternites. Basal 3 segments of antennae brown, distal 2 fuscous with narrow basal band of lighter color.

Anterolateral margins of pronotum nearly straight, entire; humeri little produced, rounded. Scutellum 2.1–2.3 mm wide at base, 2.3–2.6 mm long. Body with membrane about 6–7 mm long.

Dorsal pygophoral margin visible from caudal view broad, sloping convexly ventrad, depressed mesially; opening into genital cup small; pygophoral surface fuscous basally (Fig. 75).

Basal plates submarginally impressed along posterior margin, somewhat rugose, with a few strong punctures; mesial margins straight, contiguous; posterior margins evenly convex (Fig. 74).

Distribution.—Mexico (Tabasco).

Comment.—Of sympatric congeners, this apparently rare species most closely resembles *M. pama* and *M. pictiventris* in coloration and size. The pygophore is particularly distinctive.

Type.—The holotype, in the Museum für Naturkunde an der Humboldt-Universitat zu Berlin, was not examined.

Mormidea **dana** n. sp.

Light to dark brown above, shiny, disk of scutellum basally and disk of pronotum anteriorly darkest; vertex, tylus and sometimes most of cephalic disk yellowish brown; anterolateral margins of pronotum narrowly, costal margin of coria basally, connexiva laterally, spots at base of scutellum (one in each angle, one mesially), scutellar apex, and spot on disk of each corium, all ivory; punctation fuscous to black; membranes fumose. Venter yellowish brown with thoracic sterna and broad median vitta on abdomen fuscous; punctation dark, moderately dense, usually extending from thoracic pleura as broad submarginal band along each side of abdomen; disk of abdomen impunctate. Antennae fuscous, only basal 4 tenths of last segment conspicuously pale.

Anterolateral margins of pronotum nearly straight; humeral angles little produced, narrowly rounded. Scutellum 2.0–2.3 mm wide at base, 2.2–2.6 mm long. Body length with membranes 6.4–8.0 mm.

Basal plates contiguous mesially or narrowly separated; posterior margin almost evenly convex; a dark spot covers apical angles (Fig. 54).

Dorsal pygophoral margin broadly and deeply concave from caudal view, shallowly so from ventral view with obtuse median tooth; base of pygophore covered by broad dark spot (Fig. 55).

Distribution.—Ecuador (Napo-Pastaza) and Peru (Amazonas).

Types.—Holotype: male, labeled (a) Ecuador, Pompeya on Napo R. 40 km from Coca, Napo-Pastaza Prov. V-1965 (b) L. E. Pena (sic) Collector. Deposited in the American Museum of Natural History. Paratypes: (a) Bagus, 3.9.66 W. E. Rose (b) Meunprg. No. 330-66 (♂LHR, ♀UNP); Montenegro, Bagua, Amazonas. Sept. 29–Oct. 2, 1963. 350 m. Wygodzinsky (♀AMNH, ♂LHR); (a) Peru: Dept. Amazonas, Montenegro, forested Mtn. Slopes. Alt. 300 m. 22–25.1.1964 (b) P. C. Hutchison and J. K. Wright, Collectors (♀CAS); Quincemil, Peru, IX-15-1962. L. Pena, Coll. (♀AMNH); (a) Quincemil, Cuzco, Peru. April 27, 1947. Elev. 2400 ft. (b) J. C. Pallister Coll., Donor Frank Johnson (♀AMNH); Tingo Maria, Huan., Peru. Jan. 11, 194 (sic) Alt. 2200 ft. (b) as above (♀AMNH); Tingo Maria, Peru, IV-6-1963. L. Pena, Collector (♀LHR, ♂ AMNH); Quincemil, Peru. IX-15-1962 L. Pena, Coll. (♂LHR, 4♀♀AMNH).

Comment.—Species most similar in appearance to *M. dana* are *M. metallica* and *M. faisana.*

Mormidea **faisana** n. sp.

Dorsum yellowish brown with much darker punctation; narrow callous along base of scutellum interrupted and sometimes reduced to median spot; callous along each frenum continuous, submarginal; spot on disk of each corium impunctate; above callouses, anterolateral margin of pronotum, small calloused spot behind each cicatrice, connexiva and costal margin of coria basally, all brownish yellow to ivory; membrane slightly fumose. Venter somewhat lighter in color than dorsum, with thoracic sterna and continuous broad mesial vitta of abdomen black; dense dark punctation on thoracic pleura continues as broad submarginal band along each side of abdomen; lateral borders of abdomen impunctate, concolorous with connexiva; vitta impunctate, adjacent light band sparsely punctate. Legs including tarsi yellowish brown, femora and tibiae with dark spots; antennae similarly colored excepting distal 7–8 tenths of each of last two segments dark brown.

Anterolateral pronotal margins nearly straight, entire; humeri little produced, narrowly rounded. Scutellum 1.8–2.4 mm wide at base, 2.1–2.6 mm long. Body with membranes about 6.0–7.4 mm long.

Basal plates contiguous mesially; posterior margin convex; usually a few strong punctures laterally on disk (Fig. 56).

Dorsal margin of pygophore broadly convex mesially from ventral view; ventrad of this arc a large area of pygophoral surface shallowly depressed;

mesial spot located at base of pygophore and smaller spot present along dorsal margin near lateral limits of depression (Fig. 57).

Distribution.—Yucatán, Mexico.

Types.—Holotype, male labeled (a) Uxmal, Yuc, Mex., VIII-25-1952, J. & D. Pallister (b) C. R. Vose Fund, Explorers Club, A.M.N.H. Exped. Deposited in the American Museum of Natural History.

Paratypes: (a) Temax, N. Yucatan, Gaumer (b) B.C.A. Hem. I, Mormidea pictiventris (2♀♀BMNH); Yucatan, Yucatan, Mex. VIII-21-1952, J. & D. Pallister (♀AMNH, ♀LHR); Mex., Yucatan, Piste, June 3–5, 59, P. & C. Vaurie (♀AMNH); (a) Colonia Yucatan, Yucatan, Mex. VIII-19-1952, J. & D. Pallister (b) C. R. Vose Fund, Explorers Club, A.M.N.H. Exped. (♀LHR).

Comment.—The similar species *M. metallica* and *M. dana* apparently are not sympatric with *M. faisana*.

Mormidea metallica Stål, 1872

Mormidea metallica Stål, 1872, p. 20.

Dark brown to fuscous above; dot behind each cicatrice, anterolateral margins of pronotum, mesial dot at base of scutellum and thin submarginal line extending from each basal angle part way along frenum, very margin of scutellar apex, margin of coria basally and dot on disk, lateral margin of connexiva, all brownish yellow to white; membrane darkly fumose with some nearly hyaline areas. Venter brownish yellow, on each side a lateral band of dark punctures extending along body; thoracic sterna black; abdominal disk impunctate between lateral bands of black punctures, black or fuscous mesial vitta incomplete or lacking on fourth visible sternite, occasionally on both third and fourth sternites. Basal segment of antennae pale with dark lateral stripe, rarely entirely dark; following two segments dark excepting articulation between them; basal 1 or 2 tenths of fourth segment and basal 5 to 6 tenths of fifth segment pale, remainder of these segments black.

Humeral angles not produced, rounded; anterolateral margins of pronotum shallowly concave, entire. Scutellum longer than wide at base, 2.0–2.5 mm wide, 2.3–2.9 mm long. Body length with membranes about 6.3–9.3 mm.

Basal plates sparsely punctate about dark area covering apical angle; mesial margins contiguous; posterior margin of each plate arcuate, somewhat depressed above ninth paratergite (Fig. 58).

Mesial convex emargination in dorsal margin of pygophore moderately deep (Fig. 59); pygophore black or fuscous at base.

Distribution.—Colombia, Panama.

Comment.—The interrupted mesial vitta on the abdomen, much constricted distally on the fourth visible sternite, or at the other extreme virtually absent from both the third and fourth sternites, together with the unproduced humeri, seem diagnostic for the species. *M. metallica* seems more variable in size than most species of the genus.

Types.—The type specimens of *Mormidea metallica* Stål, in the Naturhistoriska Riksmuseet, Stockholm, were examined. The following is designated LECTOTYPE: male, labeled (a) Bogota (b) Lindig (c) Type (d) Allotypus (e) 414/75 (f) Riksmuseum, Stockholm. The one PARALECTOTYPE is: female, labeled (a) Bogota (b) Lindig (c) Type (d) metallica Stål (e) Typus (f) 142/56 (g) 415/75 (h) Riksmuseum, Stockholm.

A third specimen, numbered 416/75 and bearing among other labels (a) Bogota (b) Lindig (c) Paratypus, is probably an addition to the syntype series. It is an example of *M. notulata* that is aberrant in having the mesial vitta of the abdomen reduced to transverse basal lines on sternites 2–4. The humeral angles are directed more cephalad than usual and the thoracic spots at the distal end of the supracoxal clefts are extraordinarily large. I think it improbable that Stål would have taken this specimen to be an example of *M. metallica*.

Mormidea ambigua Berg, 1891

Mormidea ambigua Berg, 1891, pp. 240–241—Lethierry & Severin, 1893, p. 123 (listed)—Kirkaldy, 1909, p. 59 (listed).

Light brown to nearly fuscous dorsally; anterolateral margins of pronotum, a callous at posterior margin of each cicatrice near mesial limits, three basal spots on scutellum (one mesial and one near each basal angle), impunctate apex of scutellum, basal 3 tenths of costal margin of coria, spot near distal end of radial vein, and broadly exposed connexiva brownish yellow; membrane slightly fumose. Venter brownish yellow with sterna black excepting hirsute median streak; on pleura a black spot present at distal end of each supracoxal cleft, this spot at posterior margin of evapatorium on metapleura; a less distinct spot located at each anterolateral pronotal angle; spiracles dark; median row of dark spots on abdominal venter, each nearly semicircular, sometimes forming outline with brownish yellow center; band of strong dark punctures laterad of mesial vitta much less pronounced than in *M. paupercula*. Antennae brownish yellow with distal 2 thirds of fourth and fifth segments dark castaneous.

Anterolateral margins of pronotum nearly straight, slightly reflexed before humeri, entire, without noticeable band of submarginal dark punctures; humeri little produced, rounded. Scutellum longer than wide at base, 2.6 mm wide, 2.9–3.1 mm long. Body length with membranes 8.0–8.2 mm.

Posterior margin of pygophore labiate from lateral view, concave from both ventral and caudal views (Fig. 60), convexly rounded from dorsal view. A median dark spot present at base. Two reticulated carinae, one above other, present above parameres on each lateral wall of genital cup. Proctiger black where deflexed, posterior margin sharply reflexed.

Female unknown.

Distribution.—Argentina (Córdoba, Corrientes).

Comment.—The only species in Argentina of similar appearance is *M. paupercula,* a species distinguished by the crenulations on the anterolateral margins of the pronotum. *M. ambigua* is known only from the type series.

Types.—From the syntype series of three males the following specimen is designated LECTOTYPE: (a) Typus (b) Corrientes (c) Mormidea ambigua (d) 1376 (e) Berg (f) Museo La Plata. The two PARALECTOTYPES are labeled: (a) Typus (b) Cordoba (c) 1376 (d) Berg (e) Museo La Plata. All specimens are in the Universidad Nacional de La Plata, Facultad de Ciencias Naturalis y Museo.

Mormidea paupercula Berg, 1878

Mormidea paupercula Berg, 1878, pp. 300–301—Berg, 1879, pp. 39–40 (reprint original description)—Pirán, 1948, p. 12 (Argentina distribution)—Grazia-Vieira & Casini, 1973, pp. 58–59 (records).
Mormidea profana Breddin, 1912, p. 352—Gaedike, 1971, p. 96 (lectotype designation)—Weidner, 1972, p. 120 (type material).

Light brown above, often darker at humeri and submarginally along ivory colored anterolateral margin of pronotum; punctation dark brown to fuscous; calloused spot behind each cicatrice, sometimes mesial spot at base of scutellum, lateral margin of connexiva, costal margin of coria toward base, all ivory; small black fovea present in basal angles of scutellum; membranes of hemelytra fumose. Venter brownish yellow, darkly punctate; thoracic sterna, spot at distal end of supracoxal clefts, spiracles and mesial vitta on abdomen black; vague longitudinal band of denser punctation located between mesial vitta and spiracles. Legs and antennae rufous or light castaneous.

Humeri moderately produced, rounded; anterolateral margin sinuously concave, noticeably crenulate (Fig. 61). Scutellum about as long as wide at base, 2.5–2.9 mm wide, 2.6–3.1 mm long. Body length with membranes about 7.2–8.3 mm.

Basal plates roughly punctate, together pincer-shaped, mesial margins concave; apical angle covered with fuscous spot (Fig. 62).

Dorsal margin of pygophore moderately concave from caudal view (Fig. 63).

Distribution.—Specimens examined came from Argentina (Misiones); Brazil (Paraná, Rio Grande do Sul, Santa Catarina) and Uruguay (Paysandú, Rivera). Pirán (1948) adds to the Argentinian distribution the states of Buenos Aires, Córdoba, Entre Rios and Santa Fe. Grazia-Vieira & Casini (1973) include the department of Artigas in the Uruguayan distribution.

Comment.—The crenulated anterolateral margins of the pronotum distinguish this species.

Types.—The holotype of *Mormidea paupercula* and the lectotype of *Mormidea profana,* both females, were examined. The former is conserved in the Universidad Nacional de La Plata, Facultad de Ciencias Naturales y Museo, and the latter in the Akademie der Landwirtschaftswissenschaften at Eberswalde.

Weidner (1972) listed a holotype and two paratypes of *Mormidea profana* in the collection of the Zoologischen Museums der Universität Hamburg, but Breddin did not designate a holotype. Breddin indicated that part of the syntype series was in "Mus. Hamb." and the remainder in his collection. These specimens were examined.

Mormidea cubrosa (Dallas, 1851)

Pentatoma cubrosa Dallas, 1851, p. 247.

Mormidea cubrosa; Walker, 1867, p. 254—Bergroth, 1891, p. 222 (record)—Barber & Bruner, 1932, pp. 250, 252 (keyed, synonymy, record)—Torre Bueno, 1939, p. 218 (keyed, records)—Wolcott, 1948, p. 191 (hosts, record)—Alayo, 1967, pp. 11, 12 (keyed, synonymy, descriptive note)—Gaud & Martorell, 1974, p. 258 (record)—Rolston, 1976, p. 5 (synonymy).

Eysarcoris punctifer Walker, 1867, p. 274 (synonymized by Rolston, 1976).

Mormidea sordidula Stål, 1872, p. 21 (synonymized by Barber & Bruner, 1923)—Uhler, 1876, p. 285 (records)—Van Duzee, 1904, p. 43 (descriptive note, record)—Snow, 1906, p. 151 (record)—Van Duzee, 1907, p. 7 (record)—Barber, 1923, p. 12 (record).

Mormidea punctifer: Distant, 1899, p. 437.

Mormidea punctiger (sic): Van Duzee, 1904, p. 28 (status queried).

Mordidea punctifera (sic): Kirkaldy, 1909, p. 61 (listed).

Dorsum dull brown; small spot behind each cicatrice, on base of scutellum at meson and in basal angles, and on disk of each corium, usually pale; a submarginal callous often extending from each basal angle along part or all of frenum; connexiva brown with lateral margin palely draped by arcuate spot on each segment; apex of scutellum often with narrow pale margin; membranes hyaline. Venter coloration in two intergrading forms. Light form: pale with punctation, thoracic sterna and abdominal vittae fuscous to black; longitudinal mesial vitta usually constricted on third visible sternite, otherwise composed of contiguous subtrapezoidal spots, one on each sternite; mesal vitta paralleled on each side by vitta extending from base of abdomen over one to four sternites. Dark form: all of venter fuscous to black excepting pleura about coxae, lateral margins of abdomen, and usually calloused spot mesad of each spiracle. Antennae light to dark brown with pale basal rings on last two segments, that on last segment covering basal 2 or 3 tenths.

Anterolateral margins of pronotum concave, usually only slightly so, entire; humeral angles little produced, rounded. Scutellum longer than basal width, 2.0–2.3 mm wide, 2.1–2.5 mm long. Body length including membranes about 6.5–7 mm.

Basal plates contiguous basally, separated distally, generally rather broadly so; disk with numerous punctures similar in size to those on fifth visible sternite; apical angles usually darkened; posterior border depressed midway between apical and lateral angles (Fig. 64).

Posterior surface of pygophore somewhat protruding along each side of dorsal pygophoral margin, with a shallow semicircular depression between these protrusions arching ventrad from dorsal margin; pygophoral surface conspicuously and rather densely punctate, fuscous basally (Fig. 65).

Distribution.—This species seems to have a divided range, one part in the West Indies and the other continental. It is found in all the Greater Antilles and in the Lesser Antilles as far south as Martinique. On the continent it occurs from southern Texas to southern California and south into Colombia.

Comment.—On the continent, specimens from the northern part of the range have the light colored, trivittate venter, while those from the southern part of the range have the dark venter. Both forms and intermediates occur in Nicaragua and in the West Indies. Too few West Indian specimens are available to determine if a color cline exists in the islands, but if one does it is not as clearly defined as on the continent.

Types.—The types of *Pentatoma cubrosa* Dallas and *Eysarcoris punctifer* Walker, both females and both in the British Museum (Natural History), were examined, as were the syntypes of *Mormidea sordidula* Stål, preserved by the Naturhistoriska Riksmuseet, Stockholm. From the syntypes of *Mormidea sordidula* the following specimen is designated LECTOTYPE: male, labeled (a) Texas (b) Belfrage (c) Type (d) sordidula Stål (e) Typus (f) 148/56 (g) 303/76 (h) Riksmuseum Stockholm. PARALECTOTYPES are: male, labels (a) (b) (c) as above (d) Paratypus (e) 305/76 (f) Riksmuseum Stockholm; female, same labeling except (e) 306/76; female, same labeling except (d) Allotypus (e) 304/76.

Mormidea pictiventris Stål, 1862

Mormidea pictiventris Stål, 1862, p. 103.

Differing from *M. pama* as follows: pale narrow border along anterolateral margin of pronotum usually even, not intruding onto disk about midway between anterior and humeral angles. Narrow band along margin of connexiva entirely pale, not formed by pale area on each segment arching mesad between sutures.

Basal plates sparsely punctate basally; distal margin slightly convex, mesial margins weakly concave; large part of each plate including apical angles fuscous, polished (Fig. 66).

Pygophore truncate from lateral view, 2 minute teeth protruding from dorsal margin; dorsal margin from caudal view shallowly concave between minute teeth; arms of weak chevron-shaped carina on disk of pygophore terminate laterad of teeth (Fig. 67).

Distribution.—From Venezuela (Lara) and Colombia (Magdalena) northward into Tamaulipes state, Mexico, and possibly into southern Texas.

Comments.—This species has been thoroughly confused with *Mormidea pama*, to which records from Florida and the West Indies apply.

Distant's specimens bearing the label "B.C.A. Hem. 1, *Mormidea pictiventris*" belong to four species: *M. cubrosa* (Dos Arroyos, Guerrero; Venta de Topilote, Guerrero); *M. faisana* (Temax, Yucatán, in part); *M. pama* (Atoyac, Vera Cruz; Chiacaman, Vera Paz; Teapa, Tabasco; Temax, Yucatán, in part); and *M. pictiventris* (Bugaba, Panama; Caldera, Panama; Chilpancingo, Guerrero; Rincón, Guerrero; S. Geronimo, Guatemala; Senhu, Vera Paz; Tamax, Vera Paz; Temax, Yucatán, in part; V. de Chiriquí, Panama).

The following references may apply either to *M. pictiventris* or *M.* **pama,** or to a mixture of both species: Stål, 1872, p. 20—Distant, 1880, p. 55, Pl. 5, fig. 11—Lethierry & Severin, 1893, p. 124—Uhler, 1894, p. 229—Van Duzee, 1904, p. 42—Barber, 1906, p. 258—Kirkaldy, 1909, p. 60—Banks, 1910, p. 87—Van Duzee, 1916, p. 5—Van Duzee, 1917, p. 38—Torre Bueno, 1939, pp. 217–218.

Type.—Of the syntypes, only one specimen seems to remain in the Naturhistorisches Museum, Vienna. This male, which I designate LECTOTYPE, bears the labels: (a) Mexico, Coll. Signoret (b) *pictiventris* det. Stal.

Mormidea **pama** n. sp.

Mormidea pictiventris (auct., not Stål). Uhler, 1886, p. 6—Van Duzee, 1907, p. 7, (Jamaica record)—Blatchley, 1926, pp. 123, 124–125 (keyed, described, Florida & Cuban records)—Barber & Bruner, 1932, p. 250, 251 (keyed, descriptive note)—Bruner & Barber, 1949, p. 157 (listed)—Alayo, 1967, pp. 11, 12, Pl. 1, fig. 4 (keyed, descriptive note, host).

Yellowish brown to fuscous above; border along anterolateral margins of pronotum and large spot behind each cicatrice ivory; on scutellum, median basal spot, apex, calloused band extending along frenum from spot in each basal angle, all ivory; spot on disk of coria and draping on connexival segments between sutures pale; costal margin of coria ivory toward base; membranes slightly fumose. Venter brownish yellow, darkly punctate; thoracic sterna, blotches on pleura, broad median vitta on abdomen and on each side a lateral vitta along basal three or four visible sternites, brown to black; spiracles pale. Antennae colored as dorsum excepting most of basal segment and narrow basal rings on segments 4 and 5 pale; legs brownish yellow to light castaneous, sparsely dark dotted.

Humeri little produced, rounded; anterolateral margin of pronotum shallowly concave or sinuous, with ivory border intruding onto disk as indicated in Figure 68. Scutellum 2.0–2.7 mm wide, 2.1–3.0 mm long. Body with membrane about 6.3–7.8 mm long.

Basal plates punctate, contiguous mesially; distal margin convex near lateral angle, then transverse to apical angle; surface deeply impressed along distal margin between lateral angle and dark spot covering apical angle (Fig. 69).

Dorsal margin of pygophore labiate from lateral view, elevated mesially above chevron-shaped impression (Fig. 70).

Major variation.—Dorsum mostly impunctate: a few scattered punctures on head; two small mesial patches of punctures on pronotum, one just caudad of cicatrices, the other at base; a line of punctures caudad of frena follows outline of scutellum but well in from margin; on each corium a large lacuna on disk with few or no punctures. Punctation on venter slightly less dense than usual, normally distributed.

Dorsal colors strongly contrasting: tylus, vertex and base of head, as well as spot near base of each jugum brownish yellow; most of pronotum cephalad of humeri similarly colored excepting cicatrices and patch of punctures fuscous; ivory markings on scutellum unusually broad. Color of venter and appendages normal.

Distribution.—Like *M. cubrosa*, this species has a divided distribution, occuring in Florida, Jamaica and Cuba in the east and ranging from Tamaulipas state, Mexico, into Colombia (Antioquia, Meta).

Comments.—Species most likely to be confused with *M. pama* are *M. pictiventris* and *M. cubrosa*. The genitalia of both sexes are distinctive in the three species, and *M. cubrosa* has less conspicuous pale, dorsal markings. *M. pama* has a short pale intrusion of the anterolateral margin into the pronotal disk, a feature not seen in *M. pictiventris*. (Fig. 68).

In addition to the synonymy given above, all records under the name *M. pictiventris* for Florida and the West Indies relate to this species, as may some for Middle America.

The major variation is described from a single specimen collected at Homestead, Florida. The collector of the specimen, Dr. R. M. Baranowski, writes that he has seen additional specimens of this form.

Types.—Holotype: male, labeled La Lima Honduras 31 X 1972 L. H. Rolston. Deposited in the U.S. National Museum, type no. 72136.

Paratypes: Mexico: Veracruz, 8 mi. ne. Catemaco. July 3, 1971. Taken at light. Clark, Murray, Hart, Schaffer (♂TAMU); 2 mi se Tecoman, Col., Mex. VII-20-66. F. M. & P. K. Wagner (♀TAMU); 4 mi NW Sontecomapan, V.C., Mex. VI-9-1965, H. R. Burks, J. R. Meyer, J. C. Schaffner ♀TAMU); La Lima, Honduras, 2 XI 1972 L. H. Rolston (♂♀TAMU); (a) Cuba (b) EP Van Duzee Collection (2♀♀CAS); (a) Cuba (b) H. M. Parshley Collection (♂CAS); (a) Habana, Cuba F. Z. Cervera, Collr. (b) H. M. Parshley Collection (♂CAS); (a) Bradentown. Aug. 15'10 Fla. J. C. Bradley (b) EP Van Duzee Collection (♀CAS); (a) Mandev'le Ja. Apr. 06 (b) Van Duzee Collector (c) EP Van Duzee Collection (♂CAS); (a) Villavicencio, M. I. Colomb. VIII:4:1939 (b) Col. by Henry Dybas (c) Chicago N. H. Mus. Collection (ex W. J. Gerhard Colln. (9♂♂, 4♀♀FMNH); same data except date VIII:15:1938 (2♂♂FMNH); (a) Puerto Berrio, Antio. Colomb. VIII:4:1938 (b) Col. by Henry Dybas (c) Chicago N. H. Mus. Collection ex W. J. Gerhard Colln. (♀FMNH); same data except date VIII:15:1938 (2♂♂, ♀ FMNH); (a) Tezonapa, Veracruz, Mex. VIII:8:41 (b) Col. by H. Dybas (2♀♀FMNH); Brooksville (6 mi. NW) Hernando Co., Fla. VI:21:55 HS Dybas leg. (♂FMNH); (a) Dade Co., Fla. 8-11-1954 (b) O. D. Link, coll. (c) S.P.B. Acc. No. 119454 (♀FSCA); (a) Davie, Florida. 8-VIII-74. Broward Co. (b) R. L. Chavez. Ixora (2♂♂, ♀FSCA) Lakeland, Fla. 9 Nov. 1950. R. F. Hussey (♀FSCA); same data except date 17-V-1949 (♂,♀ FSCA); same data except date X-27-1947 (♂,♀FSCA); (a) Glen Saint Mary, Baker Co., Florida (b) 23-VIII-72. H. Collins. on Euonymus (♂FSCA); (a) Orlando, Fla. (b) J. R. Woodley, Coll. 4-X-61 (♂FSCA); (a) Emory Univ., Ga. 10-1-1945 H. V. Weems, Jr. (b) Det. by H. G. Barber (c) Mormidea pictiventris Stål Det. H. G. Barber (♀FSCA); same data except date 10-2-1947, without label (c) (♂,♀FSCA); same data as holotype (♂,♀AMNH, ♂♀NR, ♂,♀UNLP, ♂♀LHR); LaLima, Honduras. 2XI 1972. L. H. Rolston (♂ Baranowski).

Mormidea **isla** n. sp.

Light brown above, base of scutellum and coria distally sometimes dark brown with humeri and base of scutellum then becoming fuscous; pale spot behind each cicatrice, on disk of each corium and mesially at base of scutellum usually present; calloused submarginal band along frena and apex (or entire scutellar tongue) pale but rarely contrasting strongly with remainder of scutellum. Venter and appendages yellowish brown excepting fuscous spots on legs (femora and tibiae) and about distal 7 tenths of each of last two antennal segments; punctation rather strong on thorax and along sides of abdomen, concolorous, or on thorax in part or whole darkened; mesial macule at base of first abdominal sternite and usually discal portion of suture between first two sternites fuscous; dark mesial line usually present on last sternite, occasionally also on one or more of preceding sternites.

Anterolateral margins of pronotum slightly concave; humeri little produced, angular, narrowly rounded. Scutellum 2.0–2.3 mm wide at base, 2.3–2.7 mm long. Body length with membrane about 6.8–7.7 mm.

Basal plates shaped like those of *Mormidea ypsilon* but somewhat rugosely punctate.

Elevation located on each side of dorsal pygophoral margin at distance from lateral limits about equal to one fifth width of pygophore; dorsal pygophoral margin between these low elevations modestly concave; posterior surface of pygophore broadly flattened along dorsal margin (Fig. 76).

Distribution.—West Indies (Grenada, Trinidad), northern South America (Venezuela), and Costa Rica.

Comment.—This species closely resembles some small individuals of *Mormidea ypsilon.* Males of the two species are quickly distinguishable by the pygophore. Among females the stronger punctation on the basal plates and sides of the abdomen of *M.* **isla** should separate this species from *M. ypsilon.*

Types.—Holotype, male labeled Costa Rica, Guanacaste Prov. Las Cañas, Finca la Taboga. 17–27 June, 1969. Toby Schuh, Janet Crane. Deposited in the American Museum of Natural History. Paratypes: labeled as holotype (4♂♂, 6♀♀AMNH; 2♂♂, 2♀♀LHR); Caripito, Venezuela. 30 VIII 1942 (♂AMNH); (a) Trinidad, WI 6-17 1902 Chipman (b) Distant Coll. 1911-383 (♂BMNH); same except date 7-8-1902 (♂BMNH); (a) S100 (b) Grenada, Br. West Indies. H. E. Summers (♂BMNH); J. M. Ayala Edo. Guaranico, La Puerta, Venezuela. 1-VIII-75 (3♂♂UNAM, ♂RDE, ♂FSCA, ♂LHR).

Mormidea v-luteum (Lichtenstein, 1796)

Cimex v-luteum Lichtenstein, 1796, p. 106.
Pentatoma croceipes Herrich-Schäffer, 1844, p. 97, fig. 759 (synonymized by Bergroth, 1908).
Mormidea aglaeopus Dallas, 1851, pp. 212–213 (synonymized by Stål, 1872).
Mormidea croceipes: Dallas, 1851, p. 213—Stål, 1860, p. 21 (var. noted)—Stål, 1872, p. 20 (keyed, synonymy)—Berg, 1878, pp. 299–300 (description, nymph)—Berg, 1879, pp. 38–39 (reprint of 1878 paper).
Mormidea spiculigera Stål, 1860, p. 21 (varr. described) (synonymized by Stål, 1872).
Mormidea compta Walker, 1867, pp. 255–256 (synonymized by Stål, 1872).
Mormidea spegazzini Berg, 1883, pp. 204–205—Berg, 1884, pp. 20–21 (reprint of 1883 paper)—Buckup, 1961, p. 12 (record). NEW SYNONYMY.
Mormidea tristis Bergroth, 1891, pp. 221–222. NEW SYNONYMY.
Mormidea v-luteum: Bergroth, 1908, p. 248—Kirkaldy, 1909, pp. 59–60—Buckup, 1961, p. 12 (on rice)—Grazia-Vieira & Casini, 1973, p. 59 (records).

Fuscous to black above, with ivory dot on disk of each corium, another mesially at base of scutellum, usually one behind each cicatrice; on each side of scutellum a calloused ivory strip begins in basal angle and runs submarginally along frenum; scutellar apex and costal margin of coria along basal third, ivory; connexivium light castaneous where exposed; membranes lightly fumose. Venter light castaneous largely covered by disorganized fuscous to black blotches; coarse punctation and thoracic sterna black; abdomen irregularly margined laterally with castaneous or ivory; subspiracular spot at posterior margin of sternites (except last) usually subcalloused, bright castaneous or ivory; spiracles pale. Legs castaneous with dark dots; antennae fuscous or black excepting part of first segment and narrow basal ring on fifth segment pale.

Humeri narrowly rounded to spinosely produced; anterolateral margins of pronotum sinuous, entire. Scutellum longer than wide at base, 2.4–3.0 mm wide, 2.6–3.4 mm long. Body with membranes 7.3–8.9 mm.

Basal plates sparsely punctate, with diffuse dark spot covering apical angles; mesial margins contiguous, posterior margins convex, bent most above ninth paratergite, truncate above second gonocoxae (Fig. 77).

Dorsal margin of pygophore broadly and moderately concave; obtuse posterior edge mesially impressed (Fig. 78).

Major variation.—All ivory markings on dorsum are completely suppressed or obscurely represented in part.

Distribution.—Argentina (Buenos Aires, Misiones, Tucumán, Salta), Brazil (Ceará, Minas Gerais, Paraná, Rio Janeiro, Santa Catarina, São Paulo), Paraguay and Uruguay.

Comment.—The dark mottled abdominal venter of this species is distinctive.

Synonymy.—Stål (1872) synonymized *Mormidea aglaeopus* Dallas, 1851, *M. spiculigera* Stål, 1860, and *M. compta* Walker, 1867, with *Pentatoma croceipes* Herrich-Schäffer, 1844, a name which Bergroth (1908) equated with *Cimex v-luteum* Lichtenstein, 1796. The synonymy of the first three names was verified.

The type of *Mormidea tristis* Bergroth, 1893, was not located, but the description fits the form of *M. v-luteum* in which the pale dorsal markings are absent. Stål (1860) noted degrees by which these markings are suppressed, remarking under *M. croceipes* "Variat supra tota nigra" and naming three forms under *M. spiculigera:* the black form "var. *nigricans,*" an intermediate form "var. *punctipennis*" and the fully marked form "var. *ornata*."

Mormidea spegazzini Berg, 1883, applies to a combination of minor variations in color and humeral angles.

Types.—The type series of *Mormidea aglaeopus* Dallas, is in the British Museum (Natural History). The male here designated LECTOTYPE is labeled: (a) Type (b) a (c) Brazil (d) Ent. Club 44-12 (e) Brit. Mus. Type No. Hem. 1015 (f) *Mormidea aglaeopus*. The female PARALECTOTYPE is labeled: (a) 40/3.30/829 (b) b (c) *aglaeopus* Identified by Dallas.

The type series of *Mormidea spegazzini* Berg, in the Universidad Nacional de La Plata, Facultad de Ciencias Naturales y Museo, consists of three specimens. The female here designated LECTOTYPE is the best preserved specimen and is labeled: (a) Typus (b) Buenos Aires (c) *Mormidea pegazzini* (sic) Berg (d) 1382 (e) Col. Berg (f) Museo La Plata. PARALECTOTYPES: female, labeled as lectotype, with all legs save one front leg missing; male, broken and carded, labeled (a) Typus (b) Buenos Aires (c) 1382 (d) Col. Berg (e) Museo La Plata.

The type series of *Mormidea spiculigera* Stål in the Naturhistoriska Riksmuseet, Stockholm, consists of three females corresponding, in the order given below, to the varieties *nigricans, punctipennis* and *ornata*. The LECTOTYPE bears the labels (a) Brasil (b) F. Sahlb. (c) ♀ (d) *spiculigera* Stål type (e) Typus (f) 138/56 (g) 339/76 (h) Riksmuseum Stockholm. PARALECTOTYPES: female, labeled (a) Rio Jan (b) Stål (c) var. b (d) 341/76 (e) Riksmuseum Stockholm; female, labeled (a) Brasil (b) F. Sahlb. (c) flavoornata Stål type (d) Typus (e) 139/56 (f) 340/76 (g) Riksmuseum Stockholm.

The type series of *Mormidea compta* Walker, 1867, in the British Museum (Natural History), consists of 4 specimens. The specimen here designated LECTOTYPE, a male, is labeled (a) Type (b) Petropolis. Feby, 1857. J. Gray (with 57.57 on reverse side) (c) 24 *Mormidea compta* (d) Brit. Mus. Type No. Hem. 1016. PARALECTOTYPES are: female, labeled: (a) Constancia. Jany, 1857.J.Gray (with 57.57 on reverse side) (b) *Mormidea compta* Walker's catal.; female, labeled: (a) Tejuca. Jany, 1857. H. Clark (with 57.50 on reverse side) (b) *Mormidea compta* Walker's catal.

The remaining specimen of this type series (var. B in Walker's catalog) is a female of *Mormidea hamulata* Stål labeled (a) Rio Janeiro. Decy, 1856. J. Gray (with 57.57 on reverse side) (b) *Mormidea compta* Walker's catal.

Mormidea ypsilon (Linneaus, 1758)

Cimex ypsilon Linneaus, 1758, pp. 443–444.

Cimex ypsilon-aenus De Geer, 1773, p. 332, Pl. 34, figs. 7, 8 (synonymized by Dallas, 1851).

Pentatoma ypsilon: Le Peltier & Serville, 1825, p. 56.

Pentatoma scutellata Westwood, 1837, p. 37. NEW SYNONYMY.

Mormidea ypsilon: Amyot & Serville, 1843, p. 135—Dallas, 1851, p. 211 (synonymy, record)—Stål, 1860, p. 21 (record)—Walker, 1867, p. 254 (records)—Stål, 1872, p. 19 (keyed, records) Berg, 1878, p. 298 (synonymy, records)—Distant, 1880, p. 54, Pl. 6, fig. 7 (synonymy, records)—Distant, 1889, p. 328 (records)—Uhler, 1893, p. 705 (record)—Uhler, 1894, p. 172 (record)—Van Duzee, 1901, p. 344 (record)—Stoner, 1925, pp. 9–10, Pl. 1, fig. 5 (records)—Callan, 1948, p. 121 (record)—Pirán, 1948, p. 12 (records)—Buckup, 1961, p. 12 (records).

Mormidea inermis Dallas, 1851, p. 211 (synonymized by Distant, 1880).

Mormidea scutellata: Lethierry & Severin, 1893, p. 124.

Mormidea scutellata: Distant, 1900, p. 811, Pl. 52, fig. 7—Van Duzee, 1907, p. 7 (record).

Mormidea vopsilon (sic): Stoner, 1919, p. 219 (record, host).

Yellowish brown above with darker humeri, often entirely dark brown to black caudad of cicatrices; spot behind each cicatrice and on disk of each corium ivory, former often larger, sometimes absent; ivory Y-shaped mark on scutellum calloused from basal angles to junction of three arms of Y near end of frena, mesial arm usually punctate excepting at apex of scutellum; connexiva pale where exposed; membrane slightly fumose. Venter pale; punctation concolorous or darker on thorax and sides of abdomen, weakly evident on abdominal disk; spiracles concolorous with venter. Basal segment of antennae pale, variously streaked or dotted darker; remaining segments dark excepting about basal 2 tenths of fourth and basal 3 tenths of fifth.

Humeri narrowly rounded to spinosely produced; spinose humeri usually somewhat retrorse, their posterolateral margin occasionally subemarginate; anterolateral margins of pronotum straight or concave, entire. Scutellum longer than wide, 2.1–3.0 mm across base, 2.5–3.3 mm long. Body length with membrane about 7.0–9.0 mm.

Basal plates impunctate or nearly so, finely wrinkled; mesial margins contiguous, posterior margins convex, disk slightly depressed; distance from imaginary line drawn through lateral angles of basal plates to most distal part of posterior margin 2 to 4 tenths of distance from line to base of plates at meson (Fig. 79).

Margin of pygophore shallowly concave from both caudal and ventral views (Fig. 80); transverse band of sparse dark shallow punctures connects mild submarginal impression on each side of pygophoral disk. Parameres as in Figure 81.

Distribution.—This is the most widely distributed species of the genus, ranging from Uruguay and northern Argentina (Entre Rio, Misiones, Santa Fe) northward in the east through the Lesser Antilles at least to Nevis (Stoner, 1925) and in the west at least into the state of San Luis Potosí, Mexico.

Types.—The type of *Pentatoma scutellata* Westwood, from St. Vincent, in the Hope Department of Entomology, Oxford, falls within the lower range of size for this species but is otherwise unremarkable. The type is male.

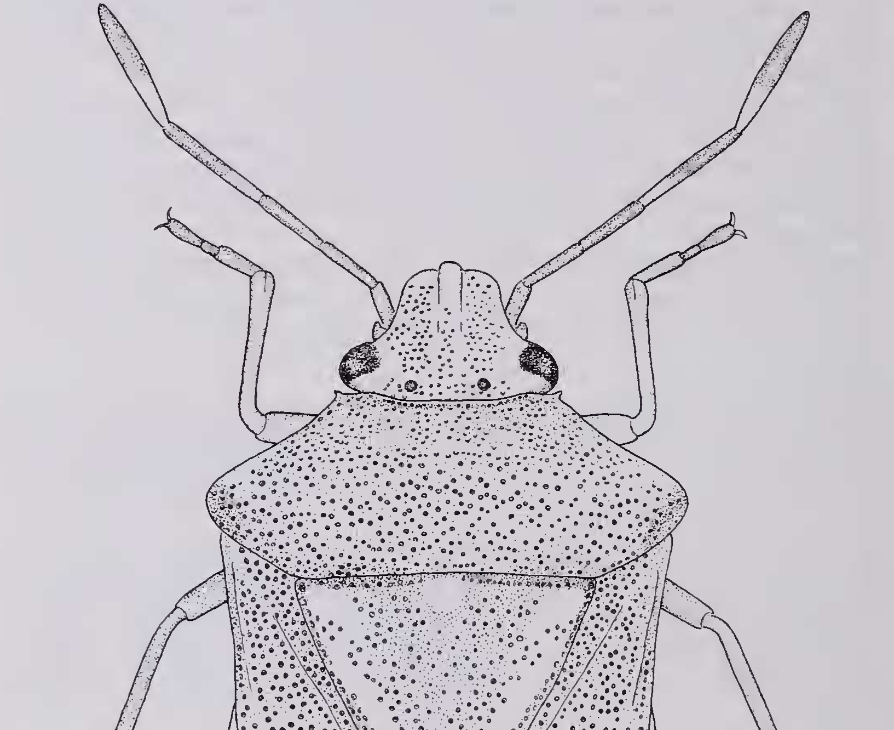
The type of *Mormidea inermis* Dallas, a female, in the British Museum (Natural History), is an ordinary example of the form with narrowly rounded humeri.

The type material of *Cimex ypsilon* was not sought.

Mormidea **lunara** n. sp.

Light to dark brown or castaneous above with fuscous or black humeri and punctation; ivory markings on scutellum limited to large spot at apex and often large spot in each basal angle, the latter occasionally somewhat elongated; pale spot at posterior margin of each cicatrice and on disk of each corium small or absent; connexiva pale where exposed; membranes hyaline or slightly fumose. Venter pale, concolorously punctate, sometimes with small dark spot before each mesocoxa, usually with dark basal macule on disk of first visible abdominal sternite, often with dark mesial line on part of one or more of other sternites. Basal segment of antennae marked by dark spot or longitudinal streak on lateral surface or entirely dark except basally; second segment similarly streaked or brown to fuscous with narrow pale ring distally; remaining segments fuscous with about basal 1 to 4 tenths of third, basal 3 tenths of fourth and basal 4 tenths of last pale.

Humeral angles acute to spinose, directed laterad and usually cephalad,



occasionally sweeping upward; anterolateral margins of pronotum concave, entire. Scutellum 2.7–3.0 mm wide at base, 3.2–3.4 mm long. Body length with membranes about 9.3–10.0 mm.

Basal plates and pygophore like those of *Mormidea ypsilon*. Parameres as in Figure 82.

Distribution.—From Sinaloa and Tamaulipas states in Mexico southward into Panama.

Comments.—The appearance of this species from a dorsal view is much like that of *Mormidea notulata*, but the latter has a well defined mesial vitta on the abdominal venter. Although the genitalia of *M.* ***lunara*** and *M. ypsilon* appear the same in undissected specimens, the two species differ in dorsal markings and in size.

Types.—Holotype: male, with genitalia dissected, labeled 1 mile northwest of Ayutla, Queretaro, Mexico. July 24–25, 1970. Schaffner, Murray, Phelps, Hart. Deposited in American Museum of Natural History. Paratypes: labeled as holotype (♂2♀♀TAMU, ♂2♀♀LHR, ♂♀UNAM); 2 miles southeast Gomez Farias, Tamaulipas, Mexico. July 20, 1970. Murray, Phelps, Hart, Schaffner (♂, ♀FMNH ♂TAMU); 5 miles sse. of Gomez Farias, Tamaulipas, Mexico. July 19–20, 1970. Murray, Phelps, Hart, Schaffner (♂♀UNLP); Cerro Campana 800 m. Panama Prov., R. P. 3 Jun 72 (♀HDE); Santa Fe Veraguas, Panama. 1100′. 7 Oct 73 Col: D. Engleman (♂ HDE); 45 km. sw. Cintalapa, Chiapas, Mexico. Aug. 12, 1967. el. 2500′. H. R. Burke and J. Hafernik (♀NR); same data except 57 km and 2100′ (♂NR); San Benito. 16VI69. Sebaco, Nic. Col: Ev. Vogel (♂♀LHR); Mexico: Oaxaca, Temascal. July 1, 1971. Taken at light. Clark, Murray, Hart, Schaffner (♀FSCA); Teopisca, Chiapas, Mexico. VI-20-1965. Burke, Meyer, Schaffner (♀TAMU); Honduras, Com., 5 mi NW Comayagua, 1600′. VII-18-1974 C. W. & L. O'Brien & Marshal (♀LHR); Tepic, Nayarit, Mex. 9-13-57. R. & K. Dreisbach (♂♀AMNH); Vera Cruz, Mex. 7-28–8-11-56 R. & K. Dreisbach (♀AMNH); same data except date 11-1-57 (♂ AMNH); Acayucan, V.C. Mex. 10-23-56 R. & K. Dreisbach (♂♀AMNH); San Blas, Nayarit, Mex. 9-13-57. R. & K. Dreisbach (♂♀AMNH); Jalapa, Ver., Mexico. 5/21/1946 (♂ CAS); 17 Mi. S. Loma Bonita, Oax., Mex. Jan. 6, 1951 (♀CAS); 14 Mi. E. San Blas, Nayarit, Mex. Oct. 8, 1950. Ray F. Smith (♀ AMNH); 3 Mi. E. Arco, Sin., Mex. Sept. 23, 1950. Ray F. Smith (♀AMNH).

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Footnote

[1] Repositories of paratypes are indicated as follows: American Museum of Natural History (AMNH); British Museum (Natural History) (BMNH); California Academy of Sciences (CAS); Field Museum of Natural History (FMNH); Florida State Collection of Arthropods (FSCA); L. H. Rolston (LHR); Museu Rio-Grandense de Ciencias Naturais (MRCN); Naturhistoriska Riksmuseet (NR); H. Dodge Engleman, M.D. (HDE); Texas A&M University (TAMU); Universidad Nacional Autónomo Mexico (UNAM); Universidad Nacional de La Plata (UNLP); Universidad Nacional de Peru (UNP).